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Environmental Protection Agency, Denver, Colo Region VIII

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16. ABSTRACT

This is the final environmental impact statement (EIS) prepared by EPA for the Denver Region concerning actions to be taken on 10 wastewater facility plans and the Denver Clean Water Plan (208 Plan). This EIS addresses the regional effects of these projects and the 208 Plan considering both direct and secondary impacts. Emphasis is given to the regional and cumulative impacts of population growth and development through the year 2000 which these projects and plans anticipate. The regional impacts on air quality, water quality, recreation, sensitive lands, agriculture, economy, and energy are examined. Volume 1 addresses the most important issues and EPA proposed actions. Volume 2 contains the detailed analysis of impacts, comments received on the draft EIS and EPA's responses to comments.

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VOLUME 1: ISSUES AND ACTIONS
EPA-908/5-77-001A

DENVER REGIONAL ENVIRONMENTAL IMPACT STATEMENT FOR WASTEWATER FACILITIES AND THE CLEAN WATER PROGRAM

REPRODUCED BY
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U.S. ENVIRONMENTAL
PROTECTION AGENCY
REGION VIII, DENVER

VOLUME I. ISSUES AND ACTIONS FINAL

EPA-908/5-77-001A

DENVER REGIONAL
ENVIRONMENTAL IMPACT STATEMENT

for

WASTEWATER FACILITIES
and the
CLEAN WATER PLAN

Prepared by

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION VIII, DENVER

April 1978

Approved by: Alan Merson
Alan Merson
Regional Administrator

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I. SUMMARY

SECTION I
SUMMARY

FINAL ENVIRONMENTAL IMPACT STATEMENT

1. Name of Action: (x) Administrative ( ) Legislative

2. Description of Action: The Environmental Protection Agency has received or is anticipating requests to fund 75 percent of the construction costs for wastewater collection and treatment facilities for the service areas in the Denver Region under Section 201 of the Clean Water Act. EPA is also required to take action on the 208 Clean Water Plan prepared for EPA by the Denver Regional Council of Governments. The ten wastewater facility plan service areas are:

  1. South Adams County
  2. Englewood and Littleton
  3. South Lakewood
  4. Cherry Creek and Goldsmith Gulch
  5. Lower South Platte
  6. Clear Creek
  7. Sand Creek
  8. Westminster and Broomfield
  9. Metropolitan Denver Sewage Disposal District No. 1
  10. Northglenn

3. Environmental Impacts and Actions

  1. Air Quality

     The funding of additional wastewater treatment capacity supports growth; growth without implementing commensurate air quality controls will result in continued air pollution problems in the Denver Region. EPA's proposed actions in response to this issue are:

     EPA's funding of wastewater projects will be contingent on:

     - legally binding commitments from local governments to participate in the development and implementation of the State Air Quality Implementation Plan;
     - design being based on DRCOG population projections (or revised projections based on air quality considerations) with 10 years additional capacity for treatment works and 20 years capacity for interceptor sewers;
     - grant conditions to limit the number of taps based on a uniform annual growth rate that is consistent with DRCOG population projections.

- additional capacity of facilities to serve contiguous development within existing urban service areas.

2. Water Quality (Stream Classification)

The Clean Water Plan recommends several changes to the existing classifications of several stream segments in the Denver Metropolitan area. The State has not officially adopted the Clean Water Plan's recommendations for stream classifications, thus causing confusion on what numbers to use for reissuing NPDES permits and designing treatment levels under the facility plans. EPA proposed actions in response to this issue are:

- Until the State officially acts on the Clean Water Plan's recommendations for stream classification, EPA will use the existing classifications and effluent requirements for making decisions on NPDES permits and construction grants;

- EPA will require further documentation to justify the Clean Water Plan's recommended downgradings.

3. Wastewater Facilities Organizations (Siting) and Treatment Processes

The Clean Water Plan has recommended a regional facility for the Clear Creek Basin near Golden while the Clear Creek facility plan has not. The Clean Water Plan has not been revised to reflect a facility for Northglenn as recommended in the Northglenn facility plan. EPA's proposed actions on this issue are:

- EPA will approve the Clean Water Plan's recommendations for wastewater treatment plant siting except for Clear Creek and Northglenn where revisions in the 208 Plan or facility plans are necessary.

- EPA shall give preference to land treatment/reuse projects and funding shall be based on compliance with NPDES permit requirements and other enforceable provisions of the Clean Water Act.

4. Management and Institutional Arrangements

Fifteen special districts that were recommended as wastewater management agencies by the Clean Water Plan were not designated by the Governor with the exception of short-term designations. The State preferred to designate general purpose governments as management agencies. EPA's proposed actions in response to this issue are:

- EPA will endorse the State's certification of general purpose governments as management agencies.
- EPA will not award construction grants to those jurisdictions that are not designated as management agencies.

5. Control of Nonpoint Source Pollution

The Clean Water Plan recommends that non-structural controls rather than the more expensive structural controls be implemented for managing nonpoint source pollution. EPA proposes to require that:

- Prior to granting funds for construction or expansion of wastewater facilities, the general purpose governments within the proposed service area must show progress towards implementing the nonpoint source controls recommended by the Clean Water Plan.

6. Maintenance of Stream Flows

Attainment of the recreational and fishery goals of the Clean Water Act is dependent on maintaining or providing sufficient stream flow to allow these uses. The implementation of the Clean Water Plan and several of the proposals recommended in the facility plans could possibly result in depleting stream flows and cause injury to downstream water right holders. EPA's proposed actions on this issue are:

- EPA shall require a regional evaluation of this issue by the on-going 208 Program and shall require each facility plan to evaluate its peculiar effect on stream flow and water quality objectives.
- EPA shall utilize other agencies (e.g., Colorado Department of Natural Resources) to determine the significance of each specific action on stream flow before authorizing construction for each proposed facility.

7. Water Conservation

In the semi-arid West, water is a precious commodity, especially for Denver and its environs. To promote better use of the scarce water resource, EPA shall require that, prior to making a construction grant for design of the wastewater treatment works, the applicant demonstrate:

- efforts have been taken to reduce wastewater flows within the service area, and
- The design capacity of the proposed facility reflects the reduction in wastewater flows.

8. Energy Conservation

The assessment of energy requirements in evaluating alternative wastewater facility concepts and design has been limited to date. To promote greater consideration of energy conservation in facility plans, EPA proposes the following action:

- As a requirement to receiving a grant for planning and design of wastewater treatment works, considerations of energy conservation technology and techniques must be demonstrated.

9. Protection of Environmentally Sensitive Resource Areas

The construction of wastewater treatment works potentially could affect environmentally sensitive areas. The issue is determining what EPA's role should be in mitigating the impacts of EPA programs on these areas. EPA proposes to adopt the following policies:

- EPA shall limit funding of projects that are located in, or indirectly affect, an environmentally sensitive area unless it can be shown there is no alternative, or hazards and impacts have been mitigated in accordance with draft DRCOG Regional Development Policies numbered 23 through 41.
- EPA will use DRCOG's review processes under A-95 and the Clean Water Plan as one mechanism for determining consistency of proposed wastewater projects with the above development policies.

- EPA will continue to rely on its facility planning and NEPA requirements for archaeological and historical sites to provide protection of these cultural resources.

10. Enhancement of Recreation Opportunities

The location and design of wastewater treatment works can be integrated with existing and future recreational facilities. EPA proposes the following action regarding this issue.

- As a part of the A-95 review process, DRCOG and the State shall be requested to make a finding that proposed facilities are compatible with recreational facilities. Also, the facility plans must analyze the potentials for incorporating into the proposed project recreation and open space opportunities.

11. Funding of Wastewater Facilities for Northern Douglas County

EPA has not evaluated the impacts of growth and development in the Northern portion of Douglas County. This area may experience rapid development over the next 20 years and as a result, may significantly influence the environment of the Denver region. EPA proposes the following action. EPA will not provide funds for extension of service into Douglas County through actions taken on the proposed Cherry Creek and Littleton/Englewood facility plans until:

- Sufficient study and review of probable effects of providing such service has been conducted, possibly leading to an environmental impact statement, and

- Adequate population, land use and water quality planning for the area to be served is prepared and integrated in the DRCOG regional plans and the State's Air Quality Implementation Plan.

12. Other Problems and Study Needs

The issues identified are (1) high nitrate levels in domestic water supplies; (2) the effects on groundwater resulting from increased demand to meet communities domestic water supply needs; (3) the effect on groundwater resulting from septic tank leach fields and solid waste disposal sites; and (4) determining a level of protection for Barr Lake to protect defined uses. For all of these issues EPA thinks that more needs to be known about the problem before recommending a definite set of actions and will require such study under the on-going 208 program.

4. Alternatives

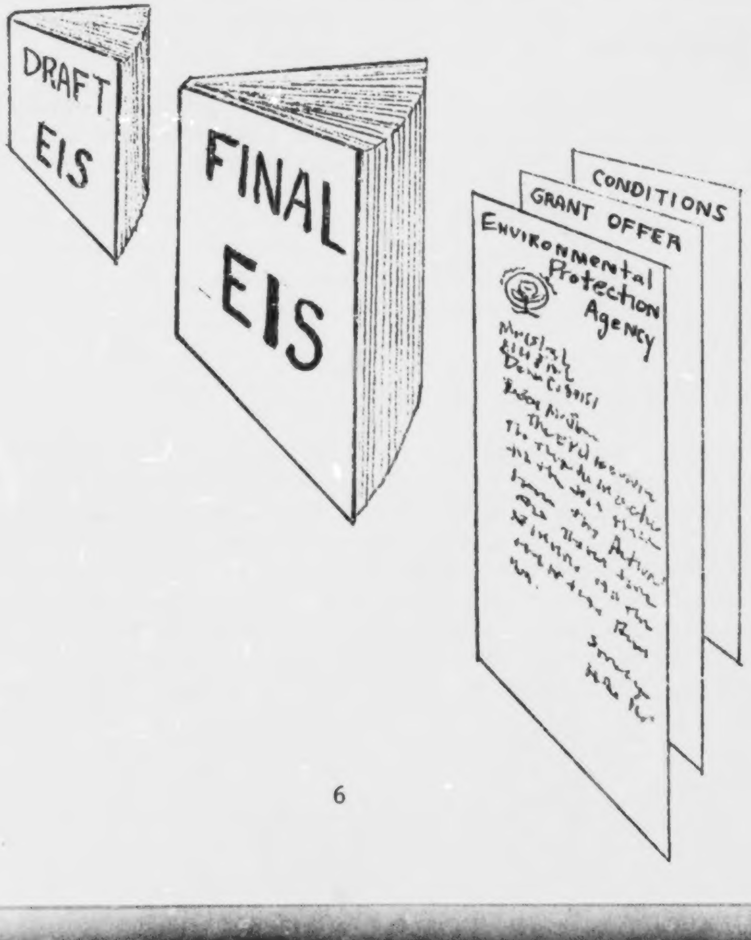
Three strategies for wastewater treatment facilities, and the Clean Water Plan recommendations were evaluated. The three strategies are termed Local, Regional, and No-action. The Local alternative strategy essentially embodies the recommended alternative of each individual Facility Plan, except for the Clear Creek basin. This alternative is very similar to the Clean Water Plan recommendations for wastewater treatment facilities, which recommends construction of local and satellite wastewater treatment plants. However, the Clean Water Plan does not call for upgrading the facilities to advanced secondary treatment as considered in the Local alternative. The Regional alternative calls for the transport of areawide wastes to a central regional plant for treatment. The No-action alternative is the likely result of no EPA grants for design and construction of wastewater treatment facilities. The No-action alternative closely resembles the Local alternative but involves delays in the construction of facilities.

5. Distribution

The list printed at the end of Volume 2 shows the agencies, groups, and individuals requested to comment on the final statement.

5. Draft Statement Sent to Council on Environmental Quality: May 27, 1977

Final Statement Sent to Council on Environmental Quality: April 11, 1978



II. INTRODUCTION AND OVERVIEW

SECTION II

INTRODUCTION AND OVERVIEW

Actions Covered

Within the Denver Metropolitan Region various local agencies have proposed or are developing proposals to construct, improve and/or expand municipal wastewater collection and treatment systems for the following service areas.

1. South Adams County
2. Englewood and Littleton
3. South Lakewood
4. Cherry Creek and Goldsmith Gulch
5. Lower South Platte
6. Clear Creek
7. Sand Creek
8. Westminster and Broomfield
9. Metropolitan Denver Sewage Disposal District No. 1
10. Northglenn

Planning for these municipal wastewater collection and treatment system modifications has and will be carried out with local agency and EPA funds under Section 201 of the Federal Water Pollution Control Act (Clean Water Act). These facility planning efforts examine a number of alternative means of achieving effluent standards derived from water quality goals. Examination and recommendations of regional water quality goals and the means of implementation are provided for by Section 208 of the Clean Water Act. The Denver Regional Council of Governments (DRCOG), designated 208 planning agency, has completed the draft 208 Plan (Clean Water Plan) and the Plan has been submitted to EPA by the State. As the Clean Water Plan addresses regional water quality issues, action on the Plan is also addressed in this EIS.

The Environmental Protection Agency has received or is anticipating requests to fund 75 percent of the construction costs for wastewater collection and treatment facilities in the Denver Region under Section 201 of the Clean Water Act. EPA is also required to take some action on the 208 Clean Water Plan. Each of these funding requests for proposed projects and the approval of the Clean Water Plan represents a proposed major federal action by EPA which may have a significant effect on the quality of the human environment. Under the provisions of the National Environmental Policy Act (NEPA), EPA must prepare an Environmental Impact Statement, and consider the environmental consequences thus disclosed before making a decision as to whether to provide the requested funds and approvals.

The purpose of preparing one EIS for ten project proposals and the Clean Water Plan, instead of a separate EIS for each project proposal is to provide a framework for examining cumulative regionwide effects. Experience has shown that the regionwide environmental effects of wastewater collection and treatment facilities for urban areas are linked to the future growth those facilities are designed to serve. EPA is concerned that actions it may take to improve regional water quality goals may jeopardize the attainment of other environmental goals.

Overview of EIS

The Environmental Protection Agency decided in the Fall of 1976 to prepare an environmental impact statement (EIS) for the Denver Metropolitan Region which addressed EPA's actions in funding wastewater treatment facilities in the area. Subsequently, EPA also decided to include in this EIS its review and approval action on the Denver Clean Water Plan (208 Plan) which was, at that time, under preparation by the Denver Regional Council of Governments. Both of these decisions were based on the belief that future EPA actions in these two water quality program areas could result in significant impacts to the environment of the Region.

Major areas of environmental concern dealt with effects of population growth, and regional development which would be accommodated, if not promoted in certain areas, by these EPA actions. Specifically, EPA considered the provision of additional wastewater collection and treatment capacity to be an issue in the Agency's efforts to attain air quality standards in the Region. However, more questions than answers to this problem were evident during preparation of the Draft EIS.

> What could EPA do to make compatible its programs to provide additional wastewater facilities and to improve air quality in the Region?
>
> How could a Federal program involving considerable funding to support growth and development of the Region be best used to also promote the Federal and State air quality objectives for which very limited Federal financial assistance is available?

While developing a consistent air quality/201 construction grants policy was a major problem, other regional environmental problems were also identified and addressed. Such regional environmental problems included: 1) the achievement of water quality standards acceptable for use in fishing and swimming, 2) the control of urban runoff and other nonpoint pollution sources, 3) the organizational and managerial structure of wastewater treatment facilities, 4) the preservation of prime agricultural land, environmentally sensitive, and unique areas and sites, and 5) the conservation of water and its reuse in the Region, among others.

The draft EIS was released for public review and comment on June 3, 1977. To foster greater public review of this document and discussion of the issues, EPA supplemented the EIS publication with slide presentations, questionnaires and newspaper inserts which briefly cover the important points addressed in the EIS. Two public hearings were held near the end of the EIS review period to provide opportunities for public discussion and comment in addition to the normal solicitation of written comments. The results of this public involvement effort are highlighted in this section and detailed further in Volume 2 of this EIS.

The review period for the draft EIS ended on August 15, 1977. During the time between the end of the draft EIS review period and completion of this final EIS, EPA has addressed all comments that we received with the appropriate additions, changes and discussions contained in Volume 2. Also during this period, EPA identified major issues discussed in the comments received on the EIS for which EPA policies or actions were needed. Such issues and actions are presented in Volume 1 of the final EIS. As presented in this Volume, the EPA actions represent proposed policies and actions which EPA will formalize at the end of the thirty-day EIS review period. Any comments received during this final review period will be evaluated and if determined by EPA to change the situation, thereby requiring a change in the proposed policy or action, EPA will make changes and notify the public by distributing a final public notice.

Subsequent to EPA's final determination, the individual actions covered by this EIS (the wastewater facility plans and the Clean Water Plan) will be reviewed and acted upon in conformance with the final policy or general course of action outlined in this EIS.

EPA must take action, under law, on the Denver Clean Water Plan (208 Plan) by May 11, 1978. EPA's review of the Clean Water Plan has been ongoing during the development of this EIS. Formal action on the Plan will consist of approval, disapproval or conditional approval of the various elements of the 208 Plan. The 208 Plan elements include such items as; designation of wastewater and nonpoint source control management agencies, recommendation of nonpoint source controls, recommendation of stream water quality classifications, etc. Some of these 208 Plan elements are considered major issues and are so addressed in this final EIS. The EPA actions of approval, disapproval and conditional approval are described on the next page. These actions have various consequences involving funding for future planning, construction of wastewater treatment works, and issuance of permits for point source dischargers.

If this EIS is not filed in time to complete the 30-day EIS review period by May 11, 1978, EPA will conditionally approve the Clean Water Plan subject to any modifications which result from the EIS review process.

Possible EPA Actions on 208 Plan	Description of Action
Approval	Certification that the elements required of a 208 plan have been fully satisfied and no more work is needed to complete the plan.
Disapproval	A determination that the 208 agency has not and will not satisfy the requirements of EPA's regulations on plan content or the conditions of the approved work plan.
Conditional Approval	A determination that the 208 plan requirements have not been fully satisfied, and identifies the steps that the 208 planning agency must take in order to achieve full approval of its plan.

This EIS does not attempt to state in final terms the specific actions EPA will take in approving or disapproving a wastewater facilities plan. Rather, this EIS sets the basis for future actions by EPA in the Denver Region concerning EPA funding and conditions for funding wastewater treatment and collection facilities. During the preparation of this EIS, some wastewater facility plans were available for detailed review, others were known in more general terms and concepts. At the end of this EIS process, a formal review and letter of action or comment will be prepared for those plans which have been completed. This review will include the consideration of the policies and actions that are described in this final EIS. Wastewater plans not yet fully developed will also undergo this same review when submitted to EPA. The present status of the wastewater facilities plans covered in this EIS is given in Table 1.

In taking action on each project, EPA may decide to: fund the project as proposed; refuse to fund the project; make funding at some future stage of the project, subject to the fulfillment of certain conditions; fund the project only with agreement to make certain project modifications. These four types of actions are described following table 1.

Table 1

STATUS OF DENVER AREA WASTEWATER FACILITY PLANS

201 Plan	Present Status
South Adams County	Plan submitted, calls for two stage development. Stage 1, calling for 1.5 MGD expansion, has been approved and is under construction. Stage 2, calling for larger expansion, has not been acted upon by EPA.
Englewood and Littleton	Plan has not been submitted for EPA review.
South Lakewood	Plan has been submitted for EPA review and is undergoing revision.
Cherry Creek and Goldsmith Gulch	The City and County of Denver has addressed certain portions of the Plan. The Metro District will complete the Plan in conjunction with the planning for central plant expansion (listed below).
Lower South Platte	Plan has been submitted for EPA review.
Clear Creek	Plan has been submitted for EPA review.
Sand Creek	Plan has been submitted for EPA review.
Westminster and Broomfield	Regional Plan has not been submitted for EPA review. Expansion of 1.5 MGD at Westminster plant is under construction.
Metro Denver Sewage Disposal District No. 1 - Central Plant Expansion	Plan has not been submitted for EPA review.
Northglenn	Plan has been submitted for EPA review.

POSSIBLE EPA ACTIONS ON INDIVIDUAL FACILITY PLANS	DESCRIPTION
Agree to fund	75% of the eligible construction costs of the project will be funded by EPA. (After September 30, 1978, 85% for innovative or alternative technologies)
Do not fund	EPA will not fund the project as proposed at this time due to adverse and/or non-beneficial impacts.
Fund with special conditions	As a requirement to receiving EPA funds certain special conditions, such as implementation of water conservation measures, must be acted upon by the grantee within a specified time period.
Fund with project modifications	As a requirement to receiving EPA funds, the grantee agrees to make certain project modifications, such as a reduction in additional treatment capacity.

Each facility plan will be subject to the requirements of the National Environmental Policy Act which established the EIS process. For each project which is funded, EPA will either prepare an EIS or issue a negative declaration stating that there are no significant impacts which have not been properly mitigated. As a result of this EIS, it is expected that most projects will not require an individual EIS and that a negative declaration will be issued.

EIS Objectives

As an overall perspective, the following general objectives were established for this EIS.

(a) To define and assess the environmental impacts of the Denver metropolitan wastewater facility plans and the 208 Clean Water Program.

(b) To define EPA policy and decision options for assurance of consistency between EPA's Air and Water Programs and the goals of NEPA, including the options for mitigation of adverse secondary impacts.

(c) To stimulate public discussion about "desirable" environmental goals for the Denver metropolitan area, with emphasis on the relationship of EPA's construction grants program to other Federal, State, regional and local governmental programs.

The results of EPA's efforts to meet the first two objectives above are discussed and presented in Volumes 1 and 2 of this Final EIS. The results of efforts to stimulate public discussion, the third objective, are presented in an EPA reference document entitled Attitudes of Denver Residents on Environmental Issues, September, 1977. Some highlights of our findings about the public's environmental awareness and concern were that:

1. Air quality is perceived as the Denver region's most serious environmental problem.

2. Air and water pollution, the loss of agricultural land, and waste of energy resources are generally attributed to regional growth and to a regional land use pattern characterized as "sprawl."

3. Significant institutional changes are thought necessary to correct these problems. Consolidation of local service districts, improvements in land use planning (strengthened zoning, state assumption of responsibility for agricultural land preservation, more caution in extension of public services), and greater regionalization of certain functions (including establishment of regional service districts and regional tax base sharing) are widely seen as promising approaches.

4. Federal funding from the Environmental Protection Agency is greatly needed for water quality improvement; however, there is disagreement on whether federal funds should be used to pay for wastewater system expansions to accommodate growth.

5. Public ignorance and apathy about environmental problems is an obstacle to the solution of those problems. The education of the public, and public involvement in environmental decisions, is seen as critical to the success of environmental improvement programs.

6. The environmental problems the Denver region faces are seen as interrelated, and solutions to those problems will require a degree of coordination among jurisdictions and levels of government beyond that now existing in the region.

EIS Format

This Final EIS does not use the standard EIS format normally used by Federal Agencies. The reason for using this modified format is to highlight and bring to the readers attention what EPA believes to be the most important aspects of our proposed actions, while allowing a complete review if desired. This Final EIS is broken into two documents. Volume 1 being the smaller of the two, summarizes the major issues, EPA's proposed actions, reasons for these actions and possible consequences. In Section III of Volume 1, twelve major issue categories are discussed and in Section IV, EPA's proposed policy and/or action regarding each issue is defined. Volume 2 of this EIS is a revision of the draft EIS in accordance with comments that EPA has received on the draft and conforms to the more generally accepted EIS format and coverage. All written comments are reproduced in Volume 2 along with EPA's responses.

III. SIGNIFICANT ISSUES

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Section III
SIGNIFICANT ISSUES

1. Air Quality

Denver has a severe air pollution problem. In the year 1976, for example, carbon monoxide concentrations exceeded the standard on 108 days and on some of those days levels reached three times the standard. Last year ozone concentrations violated the standard 65 days with levels sometimes twice the standard. Particulate violations are also frequent and the annual standard for nitrogen dioxide has been equalled.

Like many other urban areas, Denver's air pollution is largely attributable to private automobiles. More than 90 percent of the carbon monoxide, 80% of the hydrocarbons, 50% of the particulates and 40% of the nitrogen dioxide is auto caused or related. Emission control devices are proposed to reduce, over time, the amounts of carbon monoxide, hydrocarbons and nitrogen dioxides emitted from each car. Particulates will not be substantially effected by emission control devices.

Solutions to the air quality problem will require cleaner emitting cars and less use of the automobile. In the short-term, reductions in vehicle miles travelled (VMT) through carpooling and better usage of transit and other less polluting travel means (walking, bicycling, etc.) can reduce air pollution. This action combined with more effective emission controls, and an emissions inspection and maintenance program can reduce pollution even more within the next ten years. In the long-term, land use patterns which result in denser settlement around the core city and activity centers will reduce future dependence upon the automobile and help maintain reduced pollution levels.

In the Fall of 1977, Congress made major changes in the way the Clean Air Act is structured. Previous reluctance to use conventional enforcement mechanisms (generally fines but also criminal action) to force implementation of transportation control measures indicated a need for a new approach. This new approach encourages implementation of air quality improvement measures through the possible use of restrictions on federal funding and permits after July of 1979. In the interim, for urban areas which cannot, in the near future, attain air quality standards a revision of the Air Quality Implementation Plan (State Implementation Plan, SIP) is due early in 1979. This plan must show how the standards will be attained if the measures included in the plan are implemented. If it can be shown that attainment of the carbon monoxide or ozone standards is not possible by 1982, then additional, more stringent strategies must be included in another plan to be submitted to EPA in 1982.

If after 1979, the Plan is approved and being implemented, the standards should be attained as quickly as possible. If, however, the Plan is not submitted and approved by EPA or if it is approved and is not being implemented by the State and local agencies then there are sanctions specified in Section 176 of the recent Clean Air Act Amendments which will affect Federal assistance programs. These sanctions include the elimination of funding for major public works projects like federal funding for wastewater treatment facilities, and limitations on permits for construction of new stationary sources in the area.

The Clean Air Act also specifies that the 1979 revisions to the State Implementation Plan (SIP) must include provisions for growth and still show attainment of the standards. In the future, when EPA receives requests for funding wastewater treatment facilities it should be possible to determine whether or not the facility and the service it would provide are allowed for in the SIP. If that is the case, then the project would move forward. In summary, the new Clean Air Act requires that any new major federal projects, which may directly or indirectly affect air quality, be consistent with air quality implementation plans and that these plans provide for attainment of air quality standards.

This Environmental Impact Statement is being published prior to revisions to the SIP for the Denver Region. It is then incumbent upon the EPA to develop an effective and fair interim policy for dealing with wastewater treatment grants covered by this Environmental Impact Statement and any grant request that we might receive prior to anticipated approval of the Colorado Implementation Plan revisions. By July of 1979 the Air Quality Implementation Plan for the Denver Region must be developed by the State (in cooperation with DRCOG and local governments), approved by EPA and implementation initiated. If such action does not occur, then EPA under provisions of the recent Clean Air Act Amendments may cut off wastewater treatment grants where EPA believes they contribute indirectly to the present air quality problems.

It is important to note that the role of local and regional governments and officials in developing and implementing the State Implementation Plan will be strengthened as a result of the new amendments to the Clean Air Act. Planning for wastewater treatment and collection improvements is also largely a local and regional governmental function as is most other planning for development and public facilities. Compatibility and commonality of more traditional planning efforts with the regional plan to improve air quality will become increasingly important to the effective implementation of all these plans.

For a discussion on EPA proposed action regarding air quality see Section IV-1.

2. Water Quality (Stream Classifications)

The Clean Water Plan has recommended several changes to the existing water quality classifications of stream segments within the Denver Metropolitan Area. These changes are summarized in Table 2. The majority of these changes involve dropping the warm water fishery designation for the South Platte River downstream of Dartmouth Avenue (Littleton/Englewood) and Clear Creek downstream of Golden. The Clean Water Plan identified costs to achieve the 1983 National goals of the Federal Water Pollution Control Act Amendments of 1972. These costs are presented in Table 3 and serve as the principle reason for the proposed downgradings. These costs may be too high in that they assume treatment to control phosphorus which has not been shown to be necessary to meet the 1983 goals.

EPA views these recommended changes as downgradings from the present classification. All such downgradings are subject to EPA scrutiny to determine whether or not each can be justified based on the following three criteria:

1. The existing designated use for the stream segment is not attainable because of natural background water pollutants;
2. The existing designated use for the stream segment is not attainable because of irretrievable man induced conditions; or
3. Attainment of the existing designated use for the stream segment would result in substantial and widespread adverse economic and social impact.

The State, in its certification of the Clean Water Plan, addresses the problem of downgradings recommended by the Denver Regional Council of Governments with the following condition:

> "State certification of the plan does not mean endorsement of the recommended stream classifications. The recommendations included in the plan will be considered by the Commission to guide water quality decision-making during the period until the Commission reclassifies those streams according to the revised water quality stream classification system currently under consideration. When reclassifying the waters of the 5-county Denver regional area, the Commission will consider:
>
> a. recommendations and supporting information in the 208 plan.

TABLE 2

COMPARISON OF EXISTING AND CLEAN WATER PLAN RECEIVING STREAM (WATER QUALITY) CLASSIFICATION

Facility	Existing Classification	Clean Water Plan Classification
Englewood/Littleton	B_1	2, 3, 8
South Lakewood	B_2	2, 3, 8
MDSDD#1	B_2	2, 3, 8, A
Golden	B_2	2, 3, 6, 7, 8, A
Sand Creek	-	2, 3, 8, A
South Adams County	B_2	2, 3, 8, A
Brighton	B_2	2, 3, 8, A
Big Dry Creek	-	2, 3, 5, 8
Boulder	A_2	1, 2, 3, 5, 6, 7, 8
Longmont	B_2	2, 3, 8
Erie	B_2	2, 3, 8
Lafayette	B_2	2, 3, 8
Louisville	B_2	2, 3, 8
Glendale	-	2, 3, 6, 8, B
Lyons	B_2	2, 3, 5, 6, 7, 8
Niwot	-	2, 3, 8
Mountains	A_1 or B_1	1, 2, 3, 4, 6, 7, 8
Plains	-	2, 3, 8

Existing -

A_1 - Cold water fishery and primary contact recreation
A_2 - Warm water fishery and primary contact recreation
B_1 - Cold water fishery and secondary contact recreation
B_2 - Warm water fishery and secondary contact recreation

Clean Water Plan -

1. Primary contact recreation
2. Secondary contact recreation
3. Agriculture
4. Cold water biota
5. Warm water biota
6. Water supply - groundwater
7. Water supply - surface water
8. Wildlife

A. Provided municipal raw water supplies are not degraded.

B. The existing Master Plan for Cherry Creek completed by the Urban Drainage and Flood Control District, the City and County of Denver, the City of Glendale and Arapahoe County concluded that channel improvements will increase the creek's environmental suitability for wildlife and aquatic life habitats. Therefore, the classification may be modified to include a warm water biota classification following the channel improvements.

Source: "Clean Water Plan," July 1977, DRCOG, page 11.

TABLE 3

SUMMARY OF COSTS TO ACHIEVE THE 1983 NATIONAL GOAL

Pollution Source	Present Worth Costs ($\$x10^6$)	Annual Costs(1) ($\$x10^6$)
Point Sources		
Municipal	407	37
Nonpoint Sources		
Urban Runoff		
Structural	1,861	183
Nonstructural	348	29
Agricultural		
Irrigated	133	12
Dryland	24	2
Grand Total	2,773	263
Cost (\$/PE/Yr)(2)	-	146

(1) Annual costs include operation and maintenance of treatment facilities, the amortized capital costs (6-3/8% for 20 years) and the costs for implementing and operating the nonstructural controls.

(2) Assumes a population equivalent (PE) of 1,802,500 people (1985).

Source: "Technical Report," October 1977, DRCOG, page 9-89.

b. testimony presented at public hearings on the issue.

c. recommendations and requirements of 208 plans for adjoining regions.

d. goals, objectives, and requirements of appropriate State and Federal statutes and regulations."

The State through this condition has decided to wait before passing judgment on the adequacy of the documentation for downgradings. In order to assist the State in its evaluation, DRCOG has been requested to prepare an Addendum to the Plan which consolidates all the information that relates to the Plan's recommended stream classifications (see Appendix A).

The State on January 31, 1978 and February 6, 1978 held public hearings on proposed revisions to the existing water quality standards and classification system. Once the proposed revisions are adopted by the State, classification of individual stream segments will be accomplished through a subsequent set of public hearings. The State does not have an established schedule for reclassifying streams after adoption of the revised water quality standards.

Stream classifications determine the levels of treatment required for discrete dischargers and serve as a basis for defining effluent limitations that are found in NPDES permits. Table 4 shows the difference in effluent requirements for municipal dischargers between the existing stream classifications and those proposed by the Clean Water Plan.

The State's certification of the Clean Water Plan recognizes that failure to adopt the Plan's recommendations for stream classifications would result in different discharge requirements than those presented in the Plan. The State addresses this potential problem with the following conditions:

1. DRCOG, with State assistance, is to revise the waste load allocations as necessary following stream classifications by the Commission. Such revisions shall be included in the first annual plan update provided that the streams are reclassified in time for this to be accomplished.

TABLE 4

COMPARATIVE EFFLUENT LIMITATIONS - Clean Water Plan versus Existing Classifications (Municipal Dischargers Only)

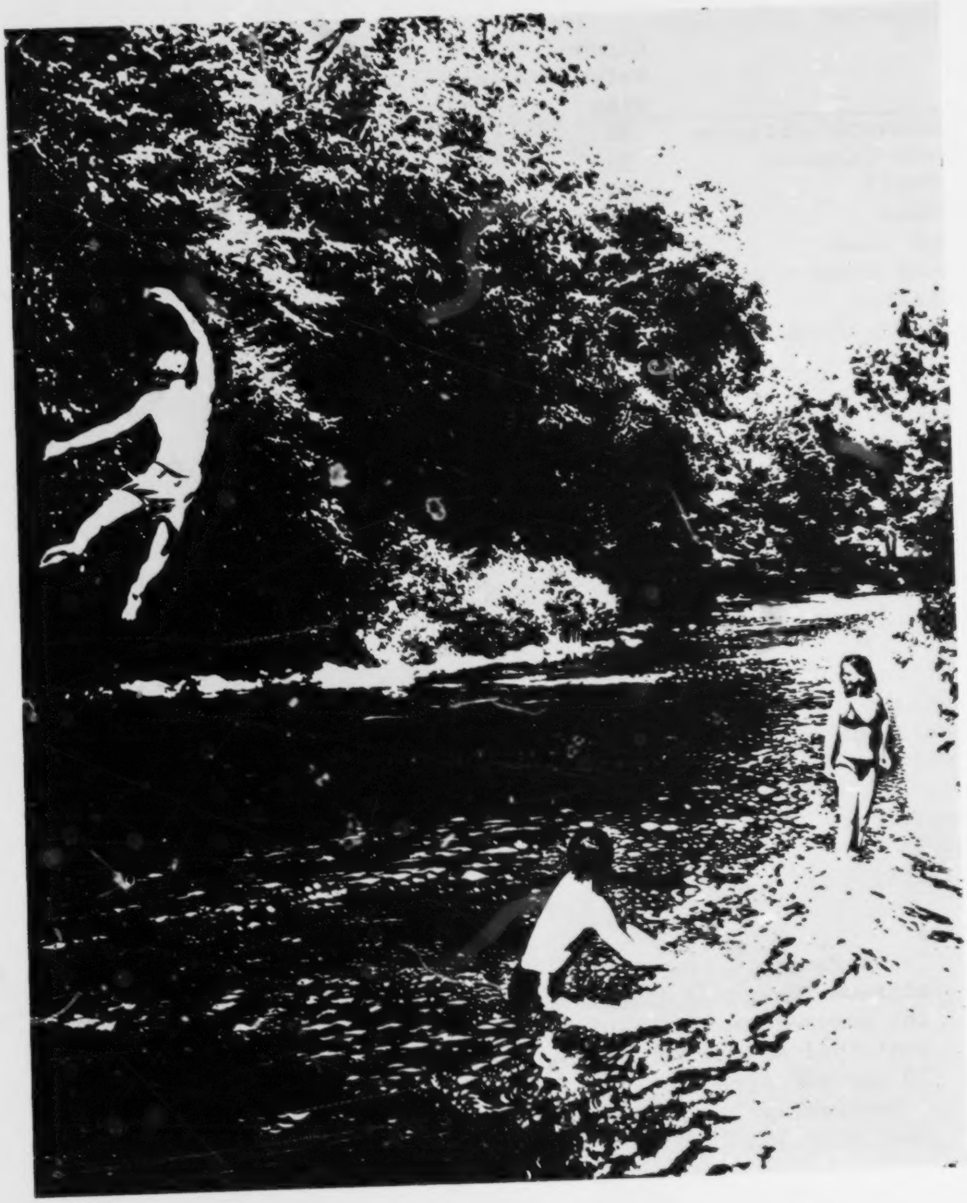
	Parameters[1]					
	BOD_5[2] (mg/l)		NH_3-N[3] (mg/l)		Cl_2[4] (mg/l)	
Discharger	Clean Water Plan	Existing	Clean Water Plan	Existing	Clean Water Plan	Existing
Englewood/Littleton	30	20	-	3.0	.5	-
South Lakewood	30	20	-	3.0	.5	-
MDSDD#1	30	20	-	1.5	.5	-
Golden	30	-	-	-	.5	-
Sand Creek	30	20	-	3.0	.5	-
South Adams County	30	20	-	3.0	.5	-
Brighton	30	20	-	3.0	.5	-
Big Dry Creek	20	30	1	2.5	.02	-
Boulder	20	30	1	4.3	.02	-
Longmont	30	30	-	6.8	.5	-
Erie	30	30	-	1.5	.5	-
Lafayette	30	30	-	1.5	.5	-
Louisville	30	30	-	1.5	.5	-
Glendale	30	20	-	3.0	.5	-
Evergreen	20	30	9	11.0	.02	-
Genesse	20	-	9	-	.02	-
Kittridge	20	30	9	11.0	.02	-
Lake Eldora	30	30	-	15.0	.5	-
Lyons	30	-	-	-	.5	-
Morrison	20	30	9	15.0	.02	-
Mountain W & S	30	-	-	-	.5	-
Nederland	20	30	1	15.0	.02	-
Niwot	30	20	-	15.0	.5	-
West Jefferson	20	30	9	11.0	.02	-
Wheatridge	-	20	-	3.0	-	-
Arvada	-	20	-	3.0	-	-
Broomfield	-	30	-	2.5	-	-

Notes:

1. The parameters listed are those which are critical to maintaining minimum levels of dissolved oxygen in stream or are critical from the perspective of fish toxicity and which are commonly found in municipal wastewater effluents.
2. 30 day average
3. 7 day average
4. instantaneous

2. The State will revise all NPDES discharge permits upon their expiration to conform with the waste load allocations (upon State adoption) referred to in the above condition and other pertinent constraints called for in the plan and State regulations.

For a discussion of EPA's proposed action regarding attainment of water quality goals and stream classification in the Denver region see Section IV-2.



3. Wastewater Facilities Organization (Siting) and Treatment Processes

The issue of facilities siting addresses the question of where should wastewater treatment plants be located to best satisfy environmental, economic, and social criteria. The criteria chosen and the emphasis placed on each will determine the best location for a wastewater facility within any specified study area. For example, the water quality plan that preceded the Clean Water Plan used economics as its principle criterion for evaluating the best location for wastewater treatment plants. Based on this criterion the 1974 plan recommended a configuration of eight facilities as the best economic mix to minimize the cost for collection, treatment, and disposal of wastewater in the five county study area excluding the mountain communities. Since the time when the Denver Regional Council of Governments (DRCOG) adopted the 1974 Plan, several events have occurred to modify this plan.

In the early stages of the development of the Clean Water Plan it became apparent that the eight facilities configuration was not politically acceptable and also, based on other criteria besides economics, this recommendation would not provide an optimum configuration that would satisfy the complete set of criteria. The most notable example of political and social factors modifying a portion of the 1974 Plan is the experience surrounding the proposal for sludge disposal in Weld County. The Weld County site was to serve as a regional sludge disposal site for three regional wastewater facilities: the St. Vrain, Big Dry, and Denver Metro (MDSDD#1). Attempts to implement this proposal proved to be unacceptable to the residents of Weld County.

The Clean Water Plan reflects a DRCOG policy to encourage reuse of wastewater wherever feasible. This policy did not influence the decision making of the 1974 Plan. Consequently, the recommendations for facility siting in the Clean Water Plan differ from the 1974 Plan. The Clean Water Plan identifies the continuation of sixteen facilities as opposed to the eight facilities recommended in the 1974 Plan. With the designation of Northglenn as a management agency, the number in the Clean Water Plan probably will increase to seventeen. Table 5 identifies the facilities as recommended in each plan.

The individual facility plans considered in this EIS are consistent with the Clean Water Plan except for two cases: (1) the Clean Water Plan recommends a facility be located in the Clear Creek drainage while the Clear Creek facility plan recommends that all flows from this drainage be treated at the Metro facility (MDSDD#1); and (2) the Clean Water Plan identifies the Northglenn/Thornton flows being treated at the Metro facility while the Lower

TABLE 5

RECOMMENDED WWTP'S: Clean Water Plan versus 1974 Plan

Clean Water Plan	1974 Plan
Englewood/Littleton	Englewood/Littleton
South Lakewood MDSDD#1 Glendale	MDSDD#1
Clear Creek (Golden)	Clear Creek
Sand Creek	Sand Creek
South Adams County Brighton	Big Dry/South Platte
Big Dry Creek Northglenn[1]	Big Dry Creek
Boulder	Boulder
Longmont Erie Lafayette Louisville Lyons Niwot	St. Vrain

1. The Clean Water Plan has not been revised to reflect a WWTP to treat Northglenn's wastewater separate from Metro.

South Platte facility plan recommends that all flows north of 100th Avenue (Northglenn and portions of Thornton) be treated at the Big Dry Creek facility or at Brighton. The Northglenn facility plan recommends treatment of Northglenn's and Thornton's flows at a different site located in Weld County. DRCOG and the State Water Quality Control Commission have accepted the Northglenn proposal.

The draft EIS discussed three basic alternatives for municipal point sources: (1) the No-action alternative; (2) the Regional alternative; and (3) the Local alternative. The salient features of these alternatives are summarized in Table 6. Generally, the Regional alternative most closely resembles the eight plant configuration recommended in the 1974 Water Quality Management Plan for the Denver area. The Local alternative is generally a composite of the recommended alternatives of the ten facility plans being considered by this EIS except for the Clear Creek service area, where the facility plan recommends transporting all waste to MDSDD#1 instead of using a satellite facility.

The issue of treatment processes involves the question of what type of treatment should be implemented to best achieve desired goals. Treatment processes generally fall into the following categories: biological treatment, physical/chemical treatment, and land treatment/reuse. All of the facility plans covered by this EIS recommend a biological or physical/chemical treatment process for final treatment. Two facility plans, Westminster and Northglenn, have reuse features whereby the effluent, after treatment, is discharged to an irrigation canal or storage reservoir for use by farmers. Presently, these reuse features are considered separate from the treatment process itself. The Colorado Water Quality Control Division has defined irrigation canals as water of the State which would require a minimum of secondary treatment before discharge to the canal would be allowed.

EPA has a policy of not funding unnecessary pretreatment requirements for those treatment processes where land application or reuse are considered part of the treatment process. In order for EPA to determine what is necessary pretreatment for a land application system, the total treatment system will need to be predesigned. Because land application is site specific, EPA does not have any criteria, which can be applied nationally, to determine the necessary pretreatment requirements for a land application system.

On October 3, 1977, Douglas Costle, the Administrator of EPA, issued the following policy: "(EPA) will press vigorously for publicly owned treatment works to utilize land treatment processes to reclaim and recycle municipal wastewater." EPA's rationale for

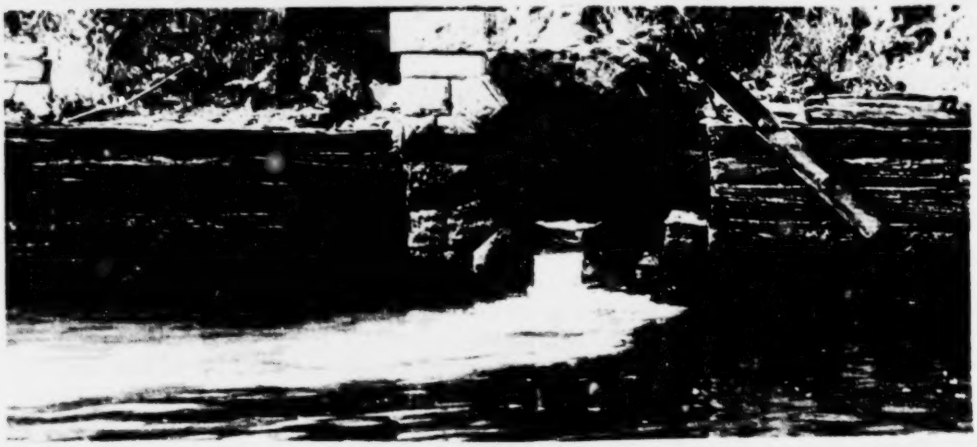
Table 6 SUMMARY OF ALTERNATIVES

Service Area	Local Alternative	Regional Alternative	No-Action Alternative
South Adams	Maintain existing plant, add 1.75 mgd 1978, and final 1.75 mgd capacity addition in 1986 for a total capacity of 6 mgd.	Add 1.25 mgd activated sludge capacity in 1977, abandon plant in 1985, all flows to MDSDD #1.	Add 1.75 mgd capacity in 1978, final 1.75 mgd added in 1990.
Englewood/Littleton	Addition of ammonia and chlorine removal for 20 mgd capacity by 1979. Further expansion of joint plant to total capacity with AWT to 30 mgd in 1982 and 40 mgd in 1993.	Same as local alternative except flows over 20 mgd transported to MDSDD #1.	Addition of ammonia and chlorine removal delayed until 1982. Expansion to 30 mgd delayed to 1986.
South Lakewood	Enlarge existing plant, improve sludge handling facilities; capacity expanded from 2 mgd to 3 mgd.	Abandon existing plant and transport all flows to Northside/MDSDD #1 complex.	Maintain existing plant, and service area, transport effluent to Northside/MDSDD #1 complex.
Cherry Creek/ Goldsmith Gulch	System of interceptors to carry expected 1985 flow from upper Cherry Creek to Northside/MDSDD #1 complex. Provision for AWT satellite plant in 1985.	Same as local alternative except additional interceptors added in 1985 in lieu of AWT Cherry Creek satellite plant.	Same as local alternative except construction of interceptors delayed two years, plans for satellite plant abandoned.
Lower South Platte	New plant for flows from Brighton, 1st, 2nd and 3rd creeks. Flows from lower Thornton used by Northglenn in agricultural exchange. Remainder of area flows to MDSDD #1 and South Adams County Water Sanitary District.	All flows transported to MDSDD #1 except flows from Brighton, 1st, 2nd and 3rd creeks to new plant.	Same as local alternative except delayed four years, and lower Thornton flows to Westminster.
Clear Creek	New Plant with 6.5 mgd capacity in 1983 on Clear Creek. AWT for reuse. Additional flows to MDSDD #1.	Parallel Clear Creek interceptor to transport all basin flow to MDSDD #1 for treatment.	Same as regional alternative except delayed three years.
Sand Creek	Expansion of existing Aurora plant to 2 mgd with reuse. Remainder of flows to MDSDD #1.	Parallel Sand Creek interceptor to transport flow from entire basin to MDSDD #1. Abandon existing Aurora plant.	Same as regional alternative except delayed three years.
Bloomfield/ Westminster	Expansion of existing Big Dry Creek plant to 9 mgd by 1985 with land application/agriculture reuse.	Maintain existing plants with excess flow to MDSDD #1.	Expansion of existing Big Dry Creek plant from 2.5 mgd by 1985.
Northglenn	Flows to Bull Canal Reservoir for pretreatment and storage/use in agricultural exchange of 5 mgd by 1982.	All flows to MDSDD #1.	Same as regional alternative
MDSDD #1	Addition of ammonia removal for total plant capacity of 190 mgd by 1983. Option for reuse and successive use.	Plant expansion with ammonia removal for total capacity by 1990 of 260-270 mgd.	Addition of ammonia removal facilities delayed until 1985.

this policy is that "land treatment processes are capable of achieving removal (of pollutants at) levels comparable to the best available advanced wastewater treatment technologies while achieving additional benefits" (e.g., recycling of nutrients). EPA's preference for land treatment is emphasized in the October 3 policy paper by the following statement:

> "...if a method that encourages water conservation, wastewater reclamation, and reuse is not recommended (for implementation), the applicant (will) be required to provide complete justification for the rejection of land treatment."

For a discussion of EPA's proposed action regarding wastewater facilities organization and treatment see Section IV-3.



4. Management and Institutional Arrangements

The draft EIS addressed in some detail the issue of governmental arrangements in terms of their effectiveness in implementing environmental programs to mitigate the adverse impacts of growth and development. The public apparently also understands the need to introduce institutional changes in order to adequately address some existing environmental problems in this Region (see EIS Objectives in Section II). Government and the public have recently been struggling with this issue in considering the formation of a Metropolitan Council to replace DRCOG with strengthened regional planning powers and, under some proposals, direct authority over certain services, such as wastewater treatment.

The Clean Water Plan addressed consolidation of wastewater treatment authorities. The July, 1977 Clean Water Plan recommended to the Governor that 33 management agencies be designated to implement the point source aspects of the Plan that affect municipal government. At the December, 1977 meeting of the Denver Regional Council of Governments this number was increased to 34 when the Council approved Northglenn's request to be recommended as a management agency for designation by the Governor. Of the 34 agencies recommended for designation, 19 are special purpose districts.

The Clean Water Plan proposes that the 34 agencies eventually be reduced to eight organizations. This Plan suggests a time frame of five years from the date when EPA approves the Plan to implement the proposal. The Plan promotes the formation of water quality associations to serve as the management agency for eight geographical areas (basins) within the 5 county Denver metropolitan area. These associations would be organized initially based on memorandums of understanding among the members of each association. The agencies recommended for membership in each association are identified in Table 7. The proposed boundaries for each association are shown in Figure 1. To date, none of the associations have been organized.

In certifying the Clean Water Plan the State designated the 15 general purpose governments and the Metropolitan Denver Sewage Disposal District #1, as recommended by DRCOG, without conditions. South Lakewood Sanitation District, South Adams County Water and Sanitation District, Erie Water and Sanitation District, and the St. Vrain-Left Hand Conservancy District were temporarily designated for a two year period. The State did not act upon the Plan's recommendation to designate the 15 other special districts. The management agencies designated by the State are identified in Table 7.

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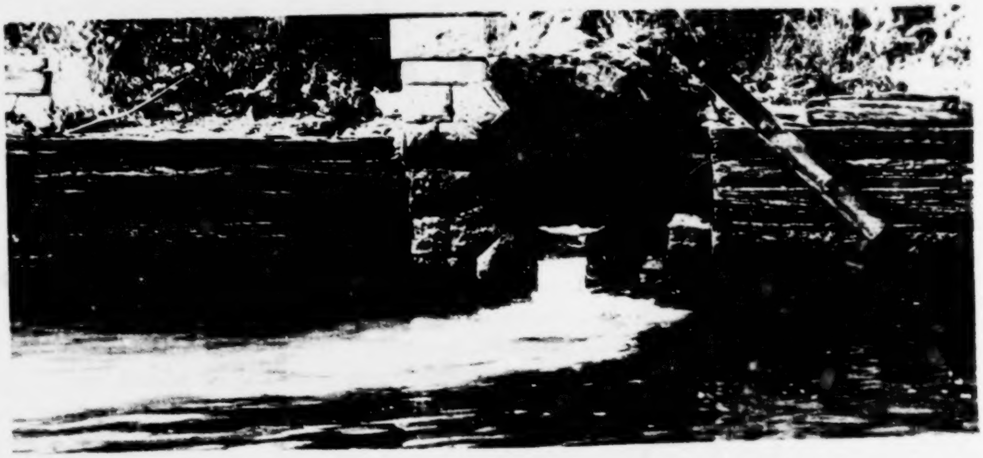

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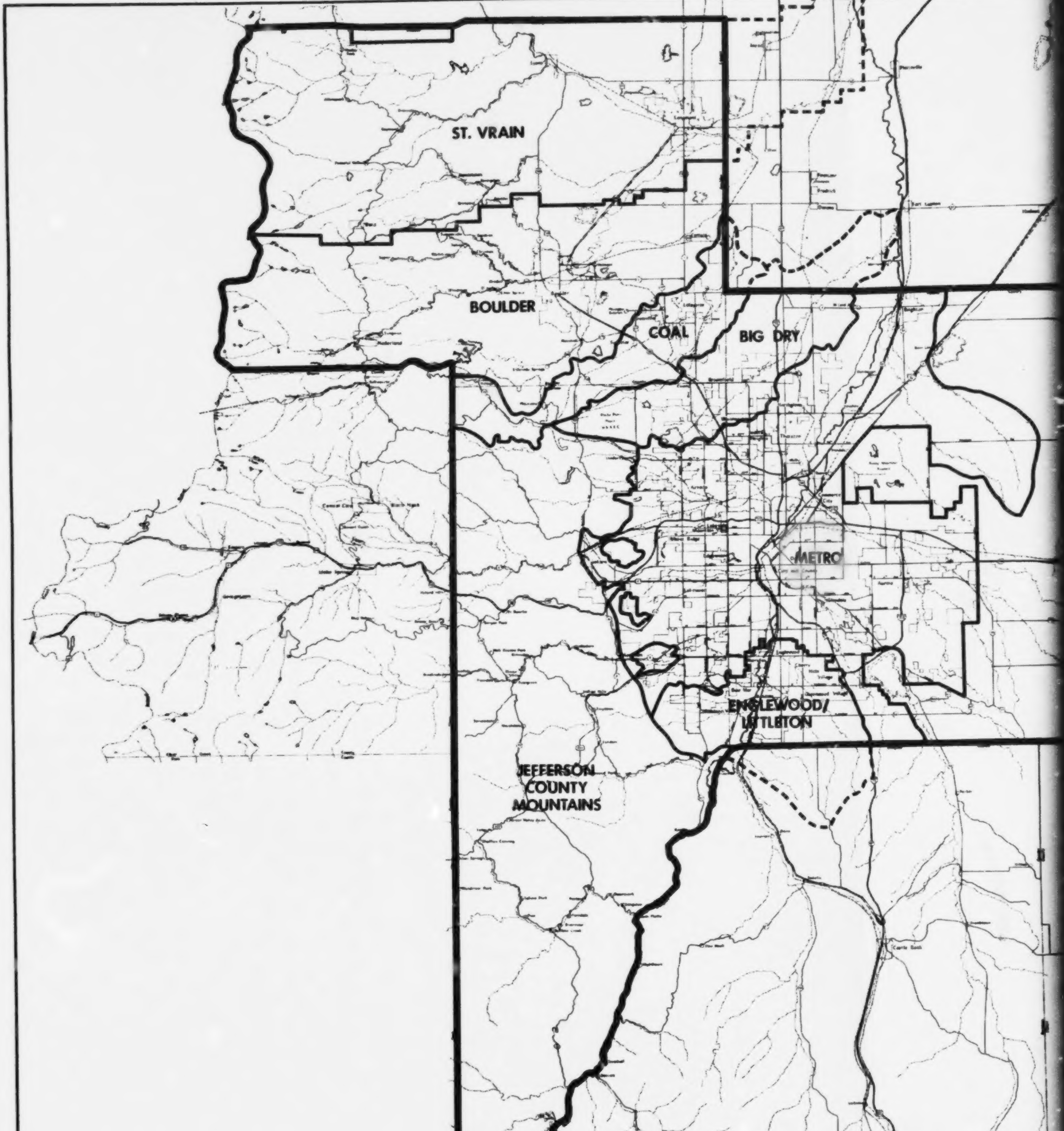
ST. VRAIN
BOULDER
COAL
BIG DRY
METRO
ENGLEWOOD/
LITTLETON
JEFFERSON
COUNTY
MOUNTAINS

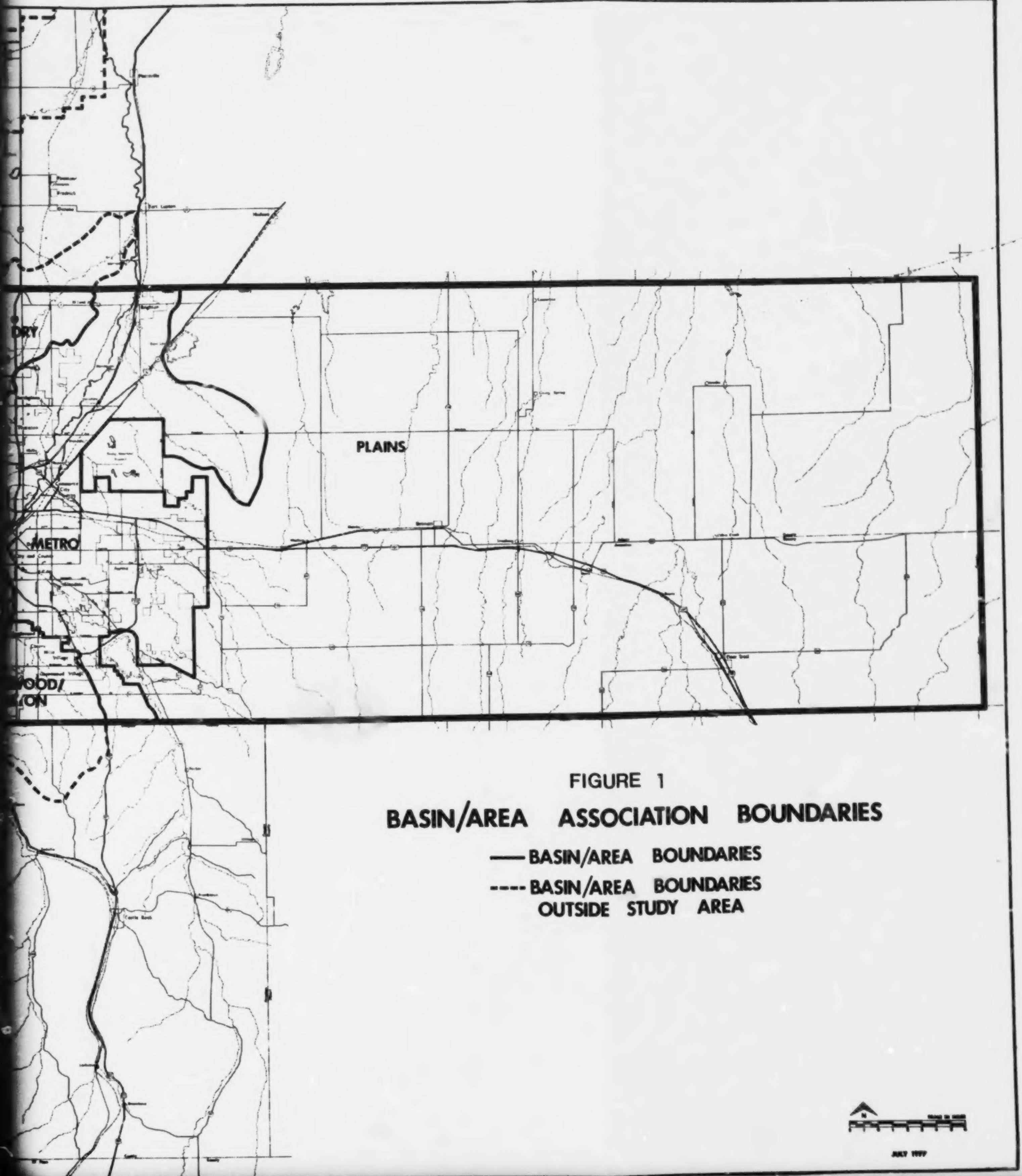

FIGURE 1

BASIN/AREA ASSOCIATION BOUNDARIES

—— BASIN/AREA BOUNDARIES

---- BASIN/AREA BOUNDARIES OUTSIDE STUDY AREA

TABLE 7

PROPOSED AREA OR BASIN ASSOCIATION AND DESIGNATED MANAGEMENT AGENCIES

Basin or Area Association	Designated Management Agencies
Littleton-Englewood Water Quality Association	Littleton* Englewood*
Metro Water Quality Association	Aurora* Arvada* Denver* Glendale* Brighton* South Lakewood Sanitation District[1] Northwest Lakewood SD South Adams County W&SD[1] Hi-Land Arces W&SD Clear Creek Valley W&SD Wheat Ridge Sanitation District Metropolitan Denver Sewage Disposal District Number One (MDSDD#1)*
Big Dry Water Quality Association[2]	Broomfield* Westminster* Northglenn*
Coal Creek Water Quality Association	Erie Water and Sanitation District[1] Lafayette* Louisville*
Boulder Water Quality Association	Boulder* Nederland* Lake Eldora W&SD
St. Vrain Water Quality Association	St. Vrain-Left Hand Water Conservancy District[1]
Jefferson County Mountain Water Quality Association	Evergreen Sanitation District Genesse W&SD Kittredge W&SD Morrison Sanitation District Mountain W&SD West Jefferson County SD
Plains Water Quality Association	Deer Trail* Bennett Sanitation District Byers W&SD Strasburg W&SD

Notes:
* Designated by the State
1. Temporary designation received from the State for two years.
2. Northglenn does not appear in original table

Source: "Clean Water Plan," July, 1977, DRCOG, page 27.

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The State has requested DRCOG to reevaluate the management agency recommendations for the Jefferson County Mountain Area, Boulder County, and special districts. According to the State; "the reevaluation should focus on establishing an active management role for general purpose governments for point source management in these areas. The following criteria should be used in establishing revised management agency recommendations:

a. have management jurisdiction over the entire area and replace the provision for temporary management agencies contained in the plan.

b. have capabilities to relate decisions between growth and development and associated services.

c. provide for coordinated management over both point and nonpoint sources.

d. incorporate management responsibilities over package treatment plants and septic tanks."

Other conditions placed on the designation of management agencies are in the State's January 10, 1978 certification letter as found in Appendix A.

Subsequent to the Governor's certification of the Clean Water Plan, legal counsel for several of the special districts that were not designated as management agencies have written the Governor and EPA to express disagreement with the action taken by the State. The controversy surrounding the designation of special purpose districts as management agencies stems from an effort within State government to promote agencies with broader authority than just wastewater collection, treatment, and disposal. As indicated in a. through d. above.

The Clean Water Plan did not recommend any management agencies for implementing the nonpoint source sections of the Plan. The State's certification letter called for a process which will define nonpoint source management agencies as part of the first plan update and which is consistent with the State's nonpoint source framework plan. To the extent possible, the State expects the plan update to recommend agencies for the control of nonpoint sources.

For a discussion on EPA's proposed action regarding management and institutional arrangements see Section IV-4.

5. Control of Nonpoint Source Pollution

Nonpoint sources of pollution contribute significantly to the degradation of the Region's water quality. In order to meet, year around, the water quality standards which may be required for fishable and swimable waters, significant controls of nonpoint sources will be needed. Urban runoff is the major nonpoint source problem within the Denver Metropolitan Region. The Clean Water Plan indicates that phosphate and coliform pollution are the most serious problems caused by urban runoff. However, phosphate pollution should be examined on a site specific basis and such an evaluation has not occurred which would justify phosphorous removal at this time. Urban runoff also introduces toxics, detergents, pesticides, and industrial chemicals, etc., into the water environment. Generally, less is known about the effects of nonpoint pollution given the many substances which are washed, periodically and in large quantities, to the Region's streams and creeks.

The Clean Water Plan makes the following general recommendations for controlling urban runoff.

1. "The Urban Drainage and Flood Control Manual" should be used in the review of development plans and conformance with site plans during construction should be enforced.

2. For already developed areas, it is recommended that governmental agencies initiate or improve on the following types of urban runoff control practices:

    a. Catch Basin Maintenance

    b. Street sweeping and parking cleaning

    c. Improved leaf collection

    d. Eliminate unnecessary street salting; minimize sanding

3. For developing areas it is recommended that governmental agencies implement the following controls:

    a. Environmental ordinances with a view to improving water quality

    b. Site plans with sediment and erosion control features

    c. Performance standards such as: (1) natural features such as trees, groves, natural terrain and waterways shall be preserved wherever possible; (2) wherever feasible natural vegetation shall be retained and protected, etc.

d. Grading ordinances

e. Littering ordinances

f. Zoning ordinances with incentives for using water pollution control measures in design

g. Subdivision regulations with water pollution control components

h. Economic incentives

The cost for implementing a full scale non-structural, nonpoint sources control program would be approximately equal to the $29 million per year cost identified for non-strutural urban runoff controls in Table 3.

Other nonpoint source control recommendations of the Clean Water Plan include (1) a permit system to control water quality problems associated with individual waste disposal systems and (2) endorsement of the soil conservation practices that are implemented by various agricultural institutions.

The State's certification of the Clean Water Plan includes the following condition relative to non-point sources:

> The first annual plan update is to include a definition of the processes that are being or will be followed in identifying and controlling nonpoint sources resulting from urban runoff, construction, irrigated and dry-land agriculture, and septic tank systems consistent with the State's nonpoint source framework (scheduled to be completed in early 1978). That definition of processes is to include the objectives, long and short-term remedial measures, management agencies and functions and possible regulatory controls. A draft of this work should be made available to the State for its review and comment prior to its inclusion in the first annual plan update.

The above condition is process oriented; that is, it is requesting DRCOG to define how they intend to arrive at the appropriate answers for defining and controlling nonpoint source pollution. At the same time, it suggests that the State has no clear idea of how to arrive at those answers or determine what is an adequate nonpoint source program.

For a discussion about EPA's proposed action regarding nonpoint pollution control see Section IV-5.

6. Depletion of Stream Flows

The issue of depletion of stream flows is a very broad one involving water availability and water usage by municipalites, industry and agriculture through their exercise of water rights. However, the issue which must be examined in the context of the actions before EPA, is much more narrow in scope, although still complex. EPA is concerned about the potential effects of funding some wastewater facilities which remove water from the stream and may result in lowering in-stream beneficial uses (fishing, swimming, etc.) or non-attainment of those uses where presently proposed.

In general terms, stream flows determine, along with the quality of the water and the stream habitat, the in-stream uses which the river or creek support. The diversion of water for uses outside the aquatic environment may significantly alter the stream flow. The importation of water from the Western Slope has increased supplies of water to the Denver Region and resulted in increased stream flows in this area in some streams during certain times of the year. The use of this water has dewatered streams in the Region, especially during the summer irrigation season.

The goals of EPA's water quality program are to attain a level of water quality needed to provide fishable and swimmable streams and to eliminate the discharge of pollutants to these streams. These goals may not always be achieved, for a variety of reasons, but this must be evaluated and determined for each stream reach. In the Denver Region, most streams are presently classified for fishery uses but not for swimming. The Clean Water Plan generally recommends that the the South Platte River and its tributaries in the Denver Metropolitan area be downgraded to remove the fishery designation (See Water Quality, Section III). One important factor in the attainability of a viable fish population in the streams of the Denver Region is the amount of flow maintained in the stream throughout the year.

It is clear that present water diversions dewater many of the streams in this region and reduce the potential for in-stream uses. This is not the issue which EPA is addressing directly here, although it is an important consideration. Wastewater facilities which propose to either centralize treatment, or to discharge to an irrigation ditch, thereby eliminating existing discharges to streams, have the potential of carrying away the water resource necessary to provide for stream flows adequate to maintain or attain in-stream uses. Where such in-stream benefits are not achievable, because of existing water diversions, habitat conditions or excessive costs for control of nonpoint pollution sources, then the impact of a change in the discharge of treated wastewater may not be of great concern.

In the Denver Region, proposals for centralization of wastewater treatment at the Denver Northside/Metro Complex may affect future stream flows in Clear, Sand and Cherry Creeks. Presently, of these three streams only Clear Creek is classified by the State as a warm water fishery and for secondary contact recreation (boating, asthetics, etc., but not swimming). The Clean Water Plan does not recommend any of these three South Platte tributaries for classification as a fishery, but all are recommended for secondary contact recreation. However, this plan does recognize the existence of a warm water fishery in Clear Creek with flow augmentation. In Sand Creek the proposal to convey the largest portion of wastewater to the central complex for treatment and to recycle a smaller portion may jepardize secondary contact recreation. It is presently not known to what extent conveyance of wastewater to the Northside/Metro Complex from these areas will affect the stream flows and the designated or potential in-stream uses.

In the Big Dry Creek basin (Broomfield and Westminster) proposals for exchange of treated wastewater for municipal use of agricultural water may result in depletion of flows in this Creek. Historically, flows in Big Dry Creek have been augmented by discharges from wastewater treatment plants in that area. As a means to gain additional water for domestic use and to preserve irrigated agriculture, communities in the Northern Denver area have made water exchange agreements with irrigation companies. These agreements would require that the discharge point for treated wastewater be moved from the Creek to irrigation ditches resulting in reduced stream flows. These proposals have the benefit of removing pollutants from the stream but may still adversely affect in-stream uses due to flow depletion. The Big Dry Creek is presently not classified by the State for any beneficial use. The Clean Water Plan has recommended that Big Dry Creek be classified as a warm water fishery. The impact of the proposals to discharge to irrigation ditches rather than to the Creek on this recommended classification is presently not known.

Another potential problem which may result from a change in the discharge of treated wastewater is a conflict over water rights. The establishment of water rights is a judicial process in which EPA is not involved. However, EPA must protect the federal investment in these projects, should a water rights conflict exist. This does not mean that EPA would in any way get involved in a water rights dispute. Rather, in funding a wastewater treatment project, EPA's concern over water rights is that there be reasonable assurances that any dispute can be settled so as not to jeopardize the usefulness of the project. Such assurances should occur during the planning process and certainly prior to providing funds for project construction.

For a discussion about EPA's proposed action regarding depletion of stream flows, see Section IV-6.

7. Water Conservation

Encouraging water conservation is a position that EPA supports. Conservation of water use can benefit the environment by maintaining present stream conditions which support our natural environment. In the semi-arid West, where Denver is located, the easily developed sources of water are being heavily utilized. Additional water sources will require the development of more remote, expensive sources, which may include significant environmental impacts, unless conservation and reuse of our water resource is increased. Water conservation can also result in reduced public expenditures for water supply and wastewater treatment facilities. In funding the proposed wastewater treatment facilities, the benefits of water conservation can be directly achieved through a reduced need for excess capacity, if sizing reflects the effects of water conservation.

The Clean Water Plan for the Denver region assumes increased sewage flows from residential uses as follows:

1975	53 to 65 gallons/person/day
1980	56 to 68 gallons/person/day
1990	61 to 73 gallons/person/day
2000	66 to 78 gallons/person/day

These figures do not reflect per capita sewage generation for the industrial, commercial or public sectors. When all sources are considered, per capita wastewater flows are projected to increase principally due to residential water use as follows:

1975	122 gallons/capita/day
1985	130 gallons/capita/day
2000	132 gallons/capita/day

Figured in terms of total wastewater treatment capacity, this increase in per capita wastewater production will require an additional capacity of 13 million gallons per day in 1985 and 23 million gallons per day in 2000. In the year 2000, this is an increase of 8 percent over a required treatment capacity of 272 million gallons/day assuming the existing rate of wastewater production.

In a draft report prepared by the Denver Regional Council of Governments on the Regional Water Supply Plan, (January, 1978) the effects of assuming an increasing residential water demand and of assuming no increase in demand is evaluated. In this draft report the difference in total water demand for these two assumptions (increasing demand per person vs. static demand) was not sufficient to preclude the need for additional water in the Denver region, but did reduce total demand by 23,000 acre feet per year or about 4 percent by the year 2000. In the year 2010, this reduction amounted to 6 percent of the total demand. Quoting from this draft report:

> "In an analysis of per capita water use rates of the Denver Water Board system for the years 1960 to 1974, the Denver Research Institute found that residential water use in the City and County of Denver showed no definite trend and that the commercial, industrial and public water use rates were virtually constant. The analysis did, however, indicate that per capita water use for residential units outside the City of Denver was increasing.
>
> Whether suburban residential units continue to use more water or whether per capita water use begins to approach a constant rate may depend on several factors already mentioned in Section III: a trend toward greater density in housing patterns in condominum and apartment developments, a leveling off in real income and increasing awareness of the need for conservation. Another significant consideration is that most newer homes are equipped with a full range of appliances including washing machines, dishwashers and garbage grinders and are unlikely to be adding more water-using appliances."

Water conservation can and is, in some communities, being used as a means to supplement or extend existing water supplies while reducing wastewater treatment capacity requirements. In a review of studies and reports dealing with the effects of water conservation, (Fact sheet, Encouraging Flow Reductions Under Construction Grants Program", 1977) EPA estimated that:

1. Retrofit of water saving devices such as toilet dams and fine spray shower heads could reduce community wastewater flows by 15 to 20 percent.

2. Laws or ordinances requiring installation of water saving plumbing fixtures and appliances in new homes and other habitations could reduce wastewater flows from new developments by 30 to 35 percent.

These reductions in wastewater generation can be achieved through the use of water-saving devices, appliances, and plumbing fixtures, such as fine spray shower heads, low flush toilets, washers with suds savers, and flow restrictors. Also, water metering and pricing will promote water conservation, although they are most effective in reducing usage during the lawn irrigation season which does not affect wastewater generation. Tables 8 and 9 give a summary of the potential benefits for both retrofit and new home water conservation programs.

For a discussion of EPA's proposed action regarding water conservation see Section IV-7.

TABLE 8 - RETROFIT SAVINGS FOR INSTALLING DEVICES IN TYPICAL HOUSEHOLD (SUBURBAN)
(60 GPCD[1] x 3.5 PERSONS = 210 GAL./DAY)

FUNCTION AND FIXTURES	ASSUME % TOTAL USE	DEVICE	ASSUME SAVINGS	USE WITHOUT DEVICE	USE WITH DEVICE	COST OF DEVICE	ANNUAL COST OF DEVICE	IN-HOUSE ENERGY SAVINGS
TOILETS (5 GAL.)	40%	DIS-PLACEMENT DAM (1 GAL.)	20%	84 gal.	67.2 gal.	2 @ $5 each	$1.82	NO
BATHING (1/4 Bath tub - 3/4 shower)	30%	FINE SPRAY SHOWER HEADS	50% of SHOWER	63 gal.	39.4 gal.	1 @ $3 each	$0.54	YES
LAUNDRY	20%	NONE ASSUMED	0%	42.0 gal.	42.0 gal.	-	-	-
CULINARY, MISC.	10%	NONE ASSUMED	0%	21.0 gal.	21.0 gal.	-	-	-
TOTAL				210 gal.	169.6 gal.		$2.36	
PERCENT WATER SAVINGS					19%			

*Assumed 7 year life and 6 3/8% interest

ANALYSIS: 1. Annual savings = water supply cost - treatment cost - device cost

2. Water supply plus adequate treatment cost assumed equal to $2.00 per 1000 gallons

3. Annual savings per household = $2.00/1000 gallons x 40 gal. x 365 days - $2.36 = $27.13

4. Annual Savings per 100,000 persons (28570 households) = $755,100 + energy savings.

Footnote
[1] GPCD means gallons per capita per day

TABLE 9 - POTENTIAL COSTS/SAVINGS FOR INSTALLING WATER SAVING DEVICES IN NEW HOMES (SUBURBAN)
(60 GPCD x 3.5 PERSONS = 210 GAL/DAY)

FUNCTIONS AND FIXTURES	ASSUMES % TOTAL USE	DEVICE	ASSUMES SAVINGS	USE WITHOUT DEVICES (GAL)	USE WITH DEVICES (GAL)	INCREASED COST OF DEVICE	ANNUAL COST OF DEVICE*	IN-HOUSE ENERGY SAVINGS
TOILETS (5 GAL.)	40%	3.5 GAL. FLUSH TANK	30%	84.0	58.8	0	0	NO
BATHING (1/4 BATHTUB-- 3/4 SHOWER)	30%	FINE SPRAY SHOWER HEADS	50% OF SHOWER USE	63.0	39.4	0	0	YES
AUTOMATIC CLOTHES WASHER	35 GAL/LOAD 17%	18 GAL/LOAD WASHER	50%	35.7	18.0	0	0	YES
KITCHEN AND LAVATORY FAUCETS	7%	SPRAY ON LAVATORY FAUCETS	20%	14.7	11.8	$10.00	$1.82	YES
AUTOMATIC DISH WASHER	12 GAL/LOAD 6%	7.5 GAL/LOAD	38%	12.6	7.8	0	0	YES
TOTALS				210	135.8	$10.00	$1.82	

*Assumed 7 year life and 6 3/8% interest % Savings 35%

Analysis: 1. Annual savings per household = $\$2.00/1000\ \text{gal.} \times \frac{74.2\ \text{gal.}}{\text{day}} \times \frac{365\ \text{days}}{\text{year}} - \$1.82 - \$52.35$

2. Annual savings per 100,000 persons (28,570 households) = $1,496,000 + energy savings

8. Energy Conservation

The Draft EIS addressed the wastewater treatment facility energy requirements, and the future energy demands of the Denver metropolitan area. The majority of the comments received during public review of the draft EIS pertained to the energy demands associated with wastewater treatment, and the energy tradeoffs of various treatment processes. The issue remains as to what action, if any, EPA should take to promote energy conservation.

The U.S. Congress is now developing energy legislation which will address at the federal level the energy demands and supply issues discussed as indirect consequences of wastewater treatment facility support of forecasted Denver region growth. This fact plus policies developed elsewhere in this EIS which favorably affect energy demand indicate that EPA should not take further action at this time to mitigate indirect growth-related energy impacts. However, there remain feasible options for EPA to consider for mitigating direct energy impacts of wastewater treatment facilities.

This EIS indicates that the No-action alternative represents the lowest demand for electricity and natural gas. However, as discussed elsewhere in this EIS, (See Section IV-1) this alternative strategy has been deemed unacceptable. Of the remaining two strategies, the Local strategy , as discussed in Section III-3, results in a higher demand for electricity and natural gas. The most significant impact is the forecasted shortfall in natural gas supplies which may adversely affect the operation of wastewater treatment facilities. Most facility plans to date include assessments of the energy implications of various alternatives as part of the overall evaluation. However, these assessments have usually been limited in scope to a comparison of the local energy consumption for each alternative. A complete analysis would require the inclusion of other factors such as energy consumed in the management of sludges and manufacture and transport of chemicals used in the treatment process. For land application/agricultural reuse alternatives, energy credits would be given for any savings in the manufacture, transport and application of fertilizers. Other energy-saving design factors such as use of solar energy, waste heat recovery and other energy conservation concepts would also be included as a consideration in facility siting and design.

For a discussion on EPA's proposed action regarding energy conservation see Section IV-8.

9. Protection of Environmentally Sensitive and Resource Areas

Environmentally sensitive areas are generally of two types, land areas representing resources and those posing a hazard. Resource areas include deposits of sand, gravel, coal and other mineral resources; prime agricultural soils; areas of significant wildlife habitat, rare and endangered species of flora and fauna; areas and sites of cultural resources; and recreation, parkland and open space. Hazard areas include areas posing hazards such as wildfire, flooding, subsidence, expansive soils, slope failure or landslides, seismic activity, high wind, radioactivity, noise and explosions. The importance of protecting valuable resources and avoiding hazards is not at issue. The issue is rather what should EPA's role be in mitigating impacts in these areas which are a partial consequence of funding wastewater treatment facilities.

These land areas have been studied and identified to various degrees in a number of efforts in addition to this EIS. (See Growth Induced Impacts in the Region's Environmentally Sensitive Areas, Volume 2.) Most notable is the Denver Regional Council of Governments' Draft Regional Growth and Development Plan for the Denver Region. (July, 1977).

This Draft Plan identified and mapped 16 different types of environmentally sensitive or significant areas, as they are referred to in the Plan. These 16 special land forms or resource area classifications are: 1) Floodplains; 2) Wildfire hazard areas; 3) Landslide hazard areas; 4) Subsidence hazard areas; 5) Shrink-swell soil hazard; 6) Faults; 7) Wildlife habitat areas; 8) Sand, gravel, and quarry aggregate resources; 9) Coal resources; 10) Oil and natural gas resources; 11) Aquifier recharge areas; 12) Prime agricultural land; 13) Park, recreation and open space; 14) Historical places; 15) Archaeological sites; 16) Special situations (such as radiation hazard area). In addition, the Draft Plan enumerated 15 Regional Development Policies which would prohibit, restrict, or otherwise manage development in these identified areas to reduce significant adverse impacts to the environment and to development. All of the Plan Policies and draft Regional Development Policies, including those which address environmentally significant areas, are listed in Appendix B.

Comments received during public review of the draft EIS pertained to the definition used in classifying prime agricultural land and policies EPA may employ to preserve it and the necessity for recreation, parkland and open space. EPA also received comments regarding the procedures needed to provide adequate protection of cultural resources.

The definition for areas of prime agricultural soils used in the EIS was all land meeting the U.S. Soil Conservation Service criteria for prime agricultural land except availability of moisture. The intent was to identify potential as well as existing agricultural resources. Land is an in-place resource whereas the water required to fully use the land resource for agriculture is transportable. The EPA recognizes that a higher priority should be given to the protection of areas where prime agricultural soils are under irrigation and thus highly productive, than to land that is not now nor never may be exploited at its highest agricultural potential.

Disagreements over future requirements for recreation, parkland and open space for the Denver region are largely resolved if it is recognized that projected deficiencies within the urbanized areas are the main problem. This aspect was reinforced in the Denver Metropolitan Region Environmental Assessment (October 1977) and by comments on this EIS from the City and County of Denver Parks and Recreation Deaprtment. (See comments and responses, Volume 2). EPA believes that most of the existing and potential recreational resources in the urban area are and will be centered on the region's streams and lakes. The Bureau of Land Management's Foothills EIS reinforces this belief. Therefore, instream water quality, land availability and public access will largely determine the potential use and development of these bodies of water for recreational purposes (See Enhancement of Recreational Opportunities, Section III-10).

EPA is required under the National Environmental Policy Act, the National Preservation Act of 1966, Executive Order 11593, and the Historic Preservation Act of 1974 to evaluate the impact of the proposed projects on archaeological and historical resources. Through coordination with the State Historic Preservation Officer and the President's Advisory Council on Historic Preservation, EPA must minimize harm to cultural resources through consideration of all prudent and feasible alternatives. Such historic and cultural properties include those that have been identified and included in the National Register of Historic Places as well as those unidentified properties which may be eligible for inclusion.

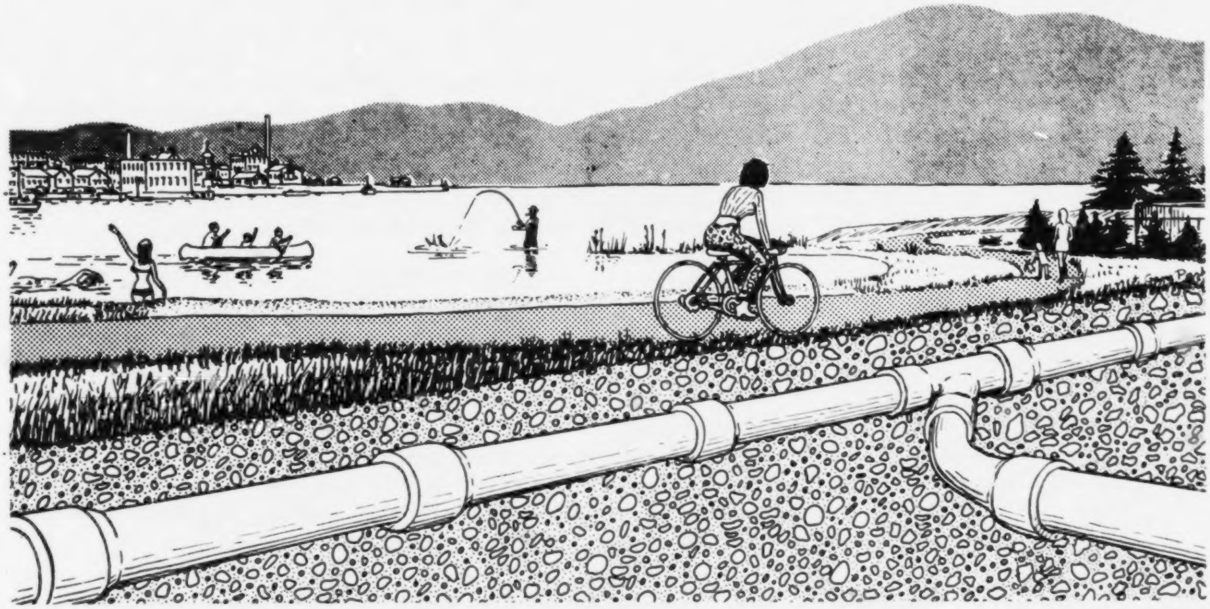
EPA's projects are generally located in areas surrounding streams of the region and, therefore, may impact known cultural sites from early settlement days as well as unknown sites from prehistoric or more recent times. Recent experience with projects involving the construction of sewer interceptor lines indicates that excavation in floodplain areas may uncover previously unknown sites which must be evaluated for significance under the National Register criteria. Therefore, not only must the impact on listed sites be considered but also the direct effects on potential sites not yet evaluated and which may be buried.

For a discussion on EPA's proposed action regarding the protection of environmentally sensitive and resource areas see Section IV-9.

10. Enhancement of Recreational Opportunities

The location and design of major interceptors, pump stations, treatment plants and other wastewater collection and treatment facilities is most frequently determined by demands for efficiency and low cost. One factor infrequently or minimally considered is compatibility with and enhancement of the recreational opportunities of proposed sites and locations. Wastewater treatment and collection facilities are often located in low lying areas along streams, where a high degree of recreational potential exists. Therefore, above-ground structures and access and maintenance roads should be located so that public access to existing, planned, or potential recreational areas is not restricted and should be visually compatible. Preservation of existing vegetation, landscaping, architectural treatments and facility layout are all techniques which can be effectively employed to minimize intrusiveness upon recreational experiences. Easements, or rights-of-way for interceptors can at times also serve as walkways and bikeways connecting centers of recreational and urban activity. The need for recreational facilities within the Denver urban and suburban setting has been established. However, the mechanism for assuring that wastewater facility planning and design is compatible with the efforts of local and regional agencies to meet that need has not been established.

For a discussion of EPA's proposed action regarding enhancement of recreational opportunities, see Section IV-10.



11. Growth and Development in Northern Douglas County

In comments made on the draft EIS, it was noted that the EIS did not address the impacts of growth and development in the Northern portion of Douglas County. The Cherry Creek and Littleton/Englewood service areas include portions of Douglas County. Presently, only the Littleton/ Englewood treatment facilities provide service to small areas in Douglas County.

The exclusion of Douglas County in the draft EIS is in part due to the lack of adequate information on the expected development of the Northern area of the County nearest Denver. This is not to say that information does not exist on the population growth and land use for Northern Douglas County, but it is not complete and may be inaccurate, especially with the recent proposal for developing the Highland Ranch. This informational problem makes it nearly impossible to accurately evaluate the future impact of growth and development in Northern Douglas County in a regional context. For example, it is not known what the impact of extensive development of this area will be on the region's air quality. Development in this area may be such that it is dependent upon jobs in Denver and therefore will require long commuter distances, or it may be self-supporting, significantly reducing commuter distances. The air quality impact of either type of development has not been evaluated.

Since Douglas County is not a member of the Denver Regional Council of Governments, the Northern portion of the County has not been included in the Clean Water Plan nor in other regional studies such as the Regional Growth and Development Plan. Douglas County is outside the area for which air quality modeling is performed for the Denver region and therefore the evaluation of future air quality, as contained in this EIS, does not apply for Douglas County. Regional services, such as bus service provided by the Regional Transportation District, are presently available to Douglas County on a limited basis.

This EIS has continued the policy of exclusion of Douglas County from active consideration in planning for growth and development in this Region. For whatever reasons, this situation does not appear acceptable, given the probable growth of the area and the environmental effects which may result in the Region. However, this EIS is not the mechanism to plan for and evaluate the impacts of growth in Douglas County. As stated earlier, the regional planning for water quality, air quality, land use, population growth and other services does not presently consider Douglas County. This EIS cannot change this situation, but it should bring it to the readers attention.

For a discussion of EPA's proposed action regarding Douglas County, see Section IV-11.

12. Other Significant Water Quality Problems and Study Needs

Recent developments have heightened EPA's concern with ground-water quality of the aquifers underlying the Denver area. Since the passage of the Safe Drinking Water Act in December, 1974 EPA has been increasingly concerned about the water quality of domestic potable supplies, including ground water. In the Denver area the communities of Brighton, Northglenn, and Thornton depend entirely, or partly, on the shallow aquifer along the South Platte River for their potable water. Although the Clean Water Plan identifies several chemical parameters which exceed the recommended limits for some uses along the South Platte Valley aquifer, the Plan does not identify any sources of these pollutants or discuss, in detail, other groundwater problems.

Three factors contributed to EPA's decision to include ground water as an issue in this EIS. They are:

1. The publicity given to high nitrite levels in Thornton's and Northglenn's water supply.
2. Development pressure, such as Phipp's Ranch, to increase usage of the area's ground water for domestic purposes.
3. The potential for ground-water contamination resulting from solid waste disposal sites and septic tank systems.

Other agencies have recognized the importance of this problem. In particular, the U. S. Geological Survey has proposed a $700,000 study of the Denver Ground-water Basin. The purpose of the study would be to collect sufficient quantity and quality data about the Denver Basin which would serve as the basis for developing a computer model of this basin. This model would allow the State and local governments to evaluate the impact of different growth patterns and water development schemes. In addition, the State Department of Health is conducting a detailed investigation of the water supply problems being experienced in the South Platte aquifer.

Another issue which has not received much attention but which EPA believes should be indentified in this EIS is the recreational status of Barr Lake versus the discharge of MDSDD#1's effluent to the Burlington-O'Brian Canal/Barr Lake System. The Clean Water Plan identified a range of costs for discharge to Burlington Ditch ($45.7 million to $140.3 million) depending on the level of treatment that would be needed to protect the recreational status of Barr Lake. However, the State has not identified a level of protection needed for this lake and consequently, the Clean Water Plan does not make any specific recommendations for controlling the discharge of effluent to the Barr Lake system.

EPA, under the National Lake Eutrophication Program, evaluated the trophic level of Barr Lake. In the report, "Barr Lake, Adams County, Colorado, Region VIII, Working Paper No. 766," (published in July, 1977) the EPA concluded that Barr Lake was the 12th worst out of 13 Colorado lakes investigated by EPA. This ranking was based on the overall quality of the lake in comparison to others using a combination of six parameters. The report also concluded that Barr Lake is nitrogen limited in regard to its eutrophic condition.

For a discussion of EPA's proposed action on these issues, see Section IV-12.

IV. PROPOSED EPA ACTIONS AND MITIGATIONS

SECTION IV
EPA PROPOSED ACTIONS AND MITIGATIONS

1. Air Quality

EPA believes that the funding of wastewater treatment and collection facilities which involve the addition of capacity to serve future population growth should be done in a manner which encourages the implementation of measures to reduce the existing air pollution problem. Population growth is going to occur in the Denver metropolitan area and unless strategies to reduce air pollution, principally from automobiles, are implemented, air quality will not significantly improve and may get even worse. Funding of additional wastewater facilities does not cause air pollution, but it does support growth, both economically and locationally, by providing readily available services for sewage treatment and reducing development costs. Therefore, EPA believes that funds should be made available only where reasonable actions are being taken to deal with the air quality impacts of growth. However, until 1979, actions to reduce air pollution may be limited due to the absence of the then required air quality Implementation Plan.

Accordingly, EPA proposes to take the following action.

EPA will continue to participate in funding wastewater treatment and collection projects which involve additional capacity where:

1. Each general purpose government included in the service area for which a grant is requested, enters into a written agreement with EPA and the State of Colorado to participate in developing and implementing local air pollution control measures as an enforceable portion of the State Implementation Plan (SIP).

2. Growth projections are consistent with the DRCOG population allocations for urban service areas or as revised during the State Implementation Plan process.

3. Additional capacity is limited to serve the population projection for 10 years for treatment works and 20 years for interceptor sewers.

4. Development which will be served by the additional capacity is within the adopted regional urban service area boundaries and contiguous to existing development as stated in DRCOG's Regional Plan Policy #5 (See Appendix B).

5. For a general purpose government grantee a condition to the grant would limit the number of taps permitted each year to accommodate a uniform annual growth rate which is consistent

with DRCOG population allocations for the service area. Taps not used in any year may be carried over to the next year.

6. For a special purpose district grantee a condition to the grant that it enter into legally enforceable agreements with each general purpose government in the service area to limit the number of taps permitted each year to accommodate a uniform annual growth rate which is consistent with DRCOG population allocations for the service area. Taps not used in any year may be carried over to the next year.

The grant conditions relating to tap limitations in 5 and 6 above may be waived by EPA after two years from the date of the grant, if it is demonstrated to EPA's satisfaction that the general purpose governments in the service area are making good faith progress towards implementing the SIP in accordance with item 1 above.

In proposing this action, EPA considered the need to continue to improve and expand wastewater treatment facilities in order to improve the water quality of the streams in this Region. Also, this action is considered necessary in order to limit the potential urban sprawl effects of EPA's wastewater facilities construction grants program. Urban sprawl often results in increased vehicle miles traveled (VMT), leading to increased emissions of auto-related air pollutants. Sprawl is also associated with accelerated physical decline and disinvestment in the core city, increased municipal service costs, loss of prime agricultural land and increased energy consumption.

EPA did consider the option of not providing grants for additional wastewater treatment and collection capacities until the State Air Quality Implementation Plan is revised (January-July 1979) and being implemented. EPA rejected this option at this time because we think it would unreasonably delay the attainment of regional water quality goals. This option must be considered by EPA under requirements of the Clean Air Act if the State Air Quality Implementation Plan is not adequately developed and being implemented by July, 1979.

2. Water Quality (Stream Classifications)

EPA's action on the Clean Water Plan is confined to approval, disapproval, or conditional approval as defined earlier in this report. The State has conditionally certified the Plan's recommendations for stream classifications and related recommendations for discharge limitations. EPA's proposed actions on the Clean Water Plan for stream classifications and corresponding discharge requirements are presented below. Rationale for these actions is presented in the discussion that follows these three action items.

1. EPA shall conditionally approve the Clean Water Plan by accepting the general conditions numbered 1 through 6 in the Governor's January 10, 1978 certification letter (see Appendix A).

2. EPA shall approve reissued permits which are based on the existing stream classifications and which are in accord with the existing effluent limitations presented in Table 4 of this report for municipal dischargers. For those municipal dischargers not in compliance with the existing discharge requirements listed in Table 4, compliance dates shall be based on the availability of construction grant funds.

3. EPA, shall notify the State that sufficient documentation has not been presented in the Clean Water Plan for EPA to accept any of the Plan's recommended stream segment downgradings. This notification will inform the State that EPA intends to testify to this fact at a public hearing which considers the Clean Water Plan's recommended downgradings, unless documentation is presented beforehand which meets EPA's criteria. DRCOG's compliance with Condition #1 of the January 10, 1978 certification letter may satisfy EPA's requirements for downgradings.

The documentation presented in the Clean Water Plan conflicts with the recommended stream classifications for those segments where the fishery designation is to be deleted. The Clean Water Plan presently does not demonstrate that background conditions, irretrievable man induced conditions, or widespread adverse economic/social impact will prevent attainment of a water quality suitable for protecting and maintaining aquatic life. DRCOG is preparing an addendum to the Plan which may provide adequate justification for the proposed downgradings. EPA will review that addendum to determine whether or not it provides adequate justification for the downgradings.

Costs have been identified in the Clean Water Plan for achieving the 1983 objectives of the Clean Water Act (see Table 3). These costs serve as the principle basis for the recommended downgradings. Examination of those costs reveal that approximately 14.7& of the total present worth costs is for point source control. Discussions with the DRCOG staff indicate that the aquatic life objectives can be met through point source control alone. If this is true, then the per capita cost to achieve this objective equals approximately $20 per year for a period of 20 years. This figure represents the additional costs to achieve the aquatic life objective given the existing controls for municipal point sources. EPA considers this figure to be within the means of the metropolitan community. The Clean Water Plan has not provided evidence that this money could be better spent elsewhere or that the expenditure of these monies would result in a "widespread adverse economic and social impact."

EPA views the State's role in setting water quality standards and a corresponding classification system as one of its primary functions. Despite the fact that the existing standards and classification system are being revised, EPA believes that it is reasonable to implement the existing State/EPA requirements for permits and construction grants.

3. Wastewater Facilities Organization (Siting) and Treatment Processes

The following criteria were used to evaluate facilities siting-issues:

a. Does the proposed facility(ies) provide in-stream flow and quality benefits to meet the enforceable portions of the Clean Water Act (i.e., NPDES and pretreatment requirements)?

b. Does the proposed facility(ies) have State 208 Plan and local endorsement?

c. Does the proposed facility(ies) further the land treatment/reuse goals of the law in accord with EPA's October 3, 1977 Policy on Land Treatment of Municipal Wastewater (see Appendix C).

d. Is the proposed facility(ies) cost effective, or has the facility plan identified the cost effective solution which could serve as the basis for establishing EPA's participation in the project, if other compelling reasons exist to implement an alternative which is not the cost effective proposal?

e. Does the proposed facility(ies) conform with other EPA, State, and local requirements relating to water rights, recreation, water supply, and the environment?

Approval of the Clean Water Plan's recommendations for wastewater treatment facilities would mean that EPA could not fund any projects that are inconsistent with the approved Plan. The recommendations contained in the Clean Water Plan for treatment facilities are not the same as recommended in the Clear Creek and Northglenn Facility Plans. Recognizing these two discrepancies and given the five criteria listed above, EPA proposes the following actions on the issues surrounding facility siting:

1. EPA shall approve the Clean Water Plan as it relates to siting for all the communities listed in Table 5 under the column headed, "Clean Water Plan," except for Clear Creek (Golden, Wheat Ridge, etc.) and Northglenn. EPA actions on these two issues are:

    a. Clear Creek - EPA prefers a sub-regional facility be constructed in the Clear Creek Basin below Golden and Coors which would serve to maintain in-stream water quality and flows. Therefore, EPA will not act on the Clear Creek facility plan or the Clean Water Plan (as it relates to locating a sub-regional facility in the Clear Creek Basin downstream from Golden) until this conflict is resolved. EPA will reserve judgment on whether the remainder of the basin should receive treatment at the Metro facility until such time as the State decides on the Clean Water Plan's proposed classification for Clear Creek and further analysis is made to determine the feasibility of discharging effluent from these facilities to Clear Creek or to downstream irrigation ditches on a full or part time basis.

    b. Northglenn - EPA endorses the water resources concept being proposed by Northglenn as a rational approach to managing the scarce water resource in the arid West. Based on this factor and Northglenn's need for an upgraded water supply, EPA is willing to fund Northgelnn's proposal. It is EPA's understanding that the Clean Water Plan and the Lower South Platte facility plan will be revised to be made consistent with the Northglenn Plan. While DRCOG and the State have designated Northglenn as a management agency and approved their plan concept, analysis and recommendations contained in the Clean Water Plan does not reflect this action. Thus an amendment to the Clean Water Plan will be required.

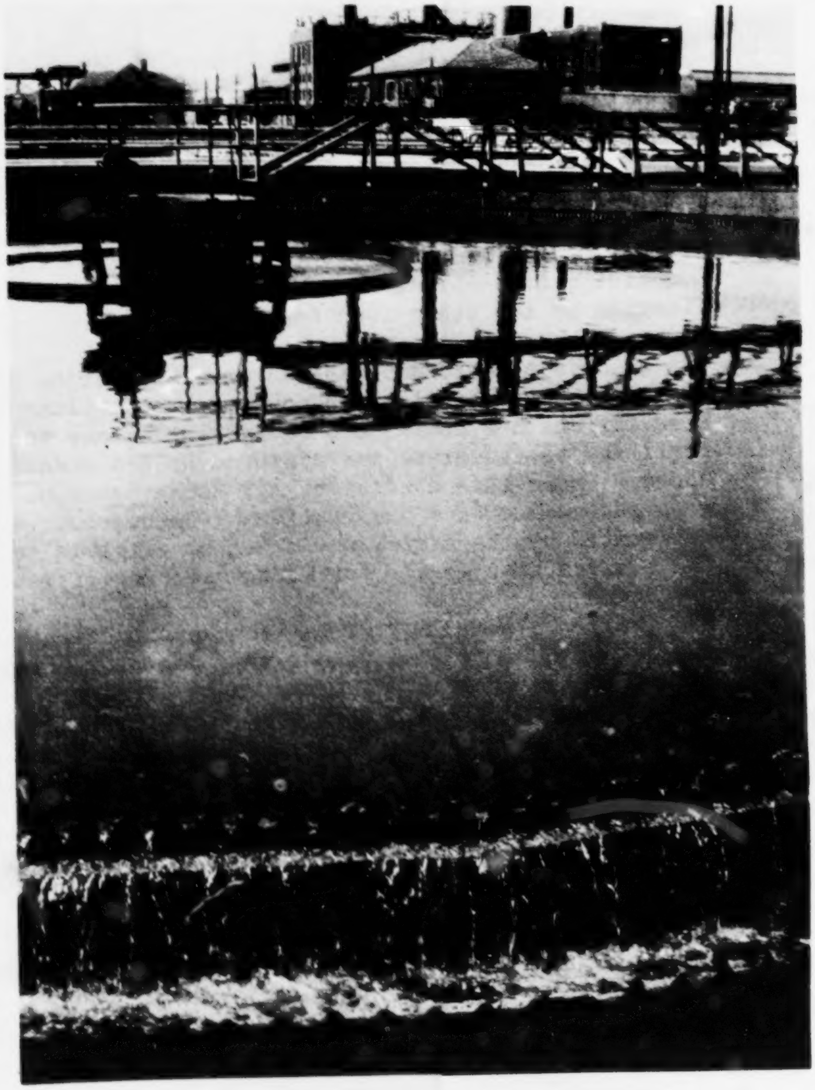
2. The above approval and conditions are contingent upon other issues relating to water rights, recreation, water supply, and the environment being satisfactorily resolved for each of the projects under construction.

Regarding the issue of treatment processes, EPA proposes the following actions:

1. EPA shall approve only those projects which use treatment processes that result in meeting NPDES permit requirements and other enforceable portions of the Clean Water Act.

2. EPA shall give strong preference to land treatment/reuse systems and shall require applicants to provide complete justification for the rejection of land treatment alternatives.

EPA is concerned that a site which is selected for a new wastewater treatment be environmentally, socially legally, and economically acceptable. Sites for facilities considered in this EIS have not been evaluated in any detail. Some site locations have not yet been selected by the grantee. This EIS provides the framework for evaluating sites during the detailed review of each facility plan. If it is determined that a facility may be located so as to cause a significant adverse impact, considering environmentally sensitive areas, historical and archaeological sites, stream flow, surrounding land uses and energy requirements, then an individual EIS on that project would be required.



4. Management and Institutional Arrangements

EPA's action on wastewater management agencies is confined to approval, disapproval, or conditional approval of the agencies designated by the Governor in the certification of the Clean Water Plan to EPA. On September 6, 1977 EPA issued, in the form of regulations, criteria for evaluating the acceptability of management agency designations. These regulations set forth guidance "to ensure (1) that management agencies designated to implement the plan possess adequate authority and capability to carry out applicable portions of the plans, (2) that plans identify certain responsibilities assigned to designated management agencies, and (3) that plans include indications of the management agencies willingness to carry out such responsibilities."

Based on the guidance cited, EPA's review of the Clean Water Plan, and EPA's review of the Governor's certification, EPA proposes the following actions relative to the Clean Water Plan and the facility plans covered by this EIS:

1. EPA shall accept the management agencies certified by the State. EPA shall accept all the conditions, (including general condition #8 as it relates to nonpoint management agencies) placed on that certification by the State (see Appendix A).

2. EPA shall not award any wastewater construction grants to those geographical areas covered by the Clean Water Plan for which a designated management agency was not certified by the State and approved by EPA under Item 1 above. Under this condition, all those agencies that were recommended for designation by DRCOG, but were not designated by the State, would not be eligible to receive EPA construction grants for wastewater facilities.

3. EPA shall not award any wastewater construction grants to the St. Vrain-Left Hand Conservancy district until such time that the contractual arrangements referred to in the State's certification letter are executed. This means that grants will not become available to Longmont, Lyons, Niwot Sanitation District and any other community or district included within the jurisdiction of the St. Vrain-Left Hand Conservancy District as defined by the Clean Water Plan.

EPA realizes that these actions do not satisfy the special districts desire to receive wastewater construction grants. EPA also realizes that these proposed actions do not support the Clean Water Plan's recommendation to organize eight water quality associations, each one of which would serve as the management agency for its area of jurisdiction within five years of EPA taking formal action on the Clean Water Plan. Nationally, EPA does not have any policies or guidance which would favor the designation of general purpose governments as opposed to special purpose districts. However, EPA believes that there are advantages to the objectives being promoted by both the State and the Clean Water Plan.

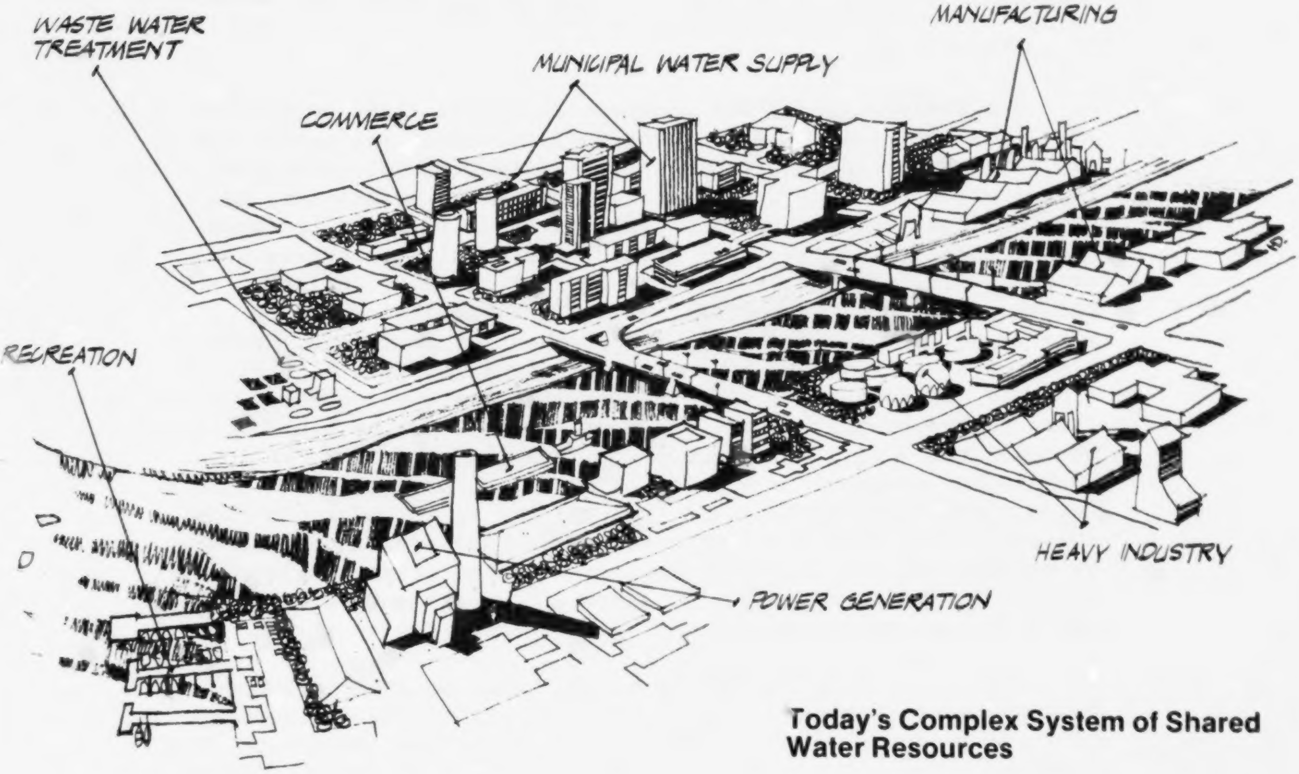
The following is EPA's assessment of what these objectives are: (1) The State is attempting to link directly together the decision making for a broad range of activities into a single organization that has responsibility for those activities, and (2) the Clean Water Plan is attempting to link closer together geographical areas that have common water quality problems and needs, while indirectly trying to improve the coordination between districts and general purpose governments regarding water quality matters as they affect land use decisions. From EPA's perspective there is a need to accomplish both objectives (that is, consolidation of responsibility for environmental programs geographically as well as functionally) in the Denver metropolitan area. This need stems from the fact that EPA administers numerous environmental programs, many of which have a legislative mandate to assure that actions taken under one program are consistent with other programs. The question of consistency among EPA programs is best illustrated by the relationship of air quality to the construction of wastewater treatment facilities which is discussed elsewhere in this report.

EPA agrees with the effort of the State to promote management agencies that have a broad range of authorities in addition to their responsibility for wastewater collection, treatment, and disposal. Therefore, EPA advocates the following actions regarding management and institutional arrangements for the Denver metropolitan area:

1. EPA encourages the formation of a metropolitan council or similar form of government which consolidates responsibility for planning and implementation of EPA related environmental programs at the regional level.

2. In the absence of a Metropolitan Council or similar form of government, EPA supports the designation of general purpose governments as wastewater management agencies in order to promote more comprehensive responsibility for environmental management, including wastewater treatment.

EPA does not believe that the above positions are opposed to the recommendations found in the Clean Water Plan. Rather, EPA believes that the Plan's long-range objective of establishing a metropolitan form of governance should be promoted in a manner consistent with the State's objectives for management agencies.



Today's Complex System of Shared Water Resources

5. Control of Nonpoint Source Pollution

The Denver Regional Council of Governments recommended in the Clean Water Plan that urban runoff pollution be controlled by nonstructural controls listed in Section III-5. The use of structural pollution controls to collect and treat urban runoff was believed to be too expensive to justify at this time. The Clean Water Plan recommended further study of nonpoint pollution to identify site specific problems and control measures prior to considering structural controls.

The following actions are proposed by EPA relating to the approval of the Clean Water Plan and the facility plans covered by this Environmental Impact Statement.

1. EPA shall accept the State's general condition #8 which requests that DRCOG better define the nonpoint source control program for urban runoff, construction, irrigated and dry-land agriculture, and septic tank systems, as part of the first plan update. EPA shall further condition approval of the Clean Water Plan requiring that within two years DRCOG address all nonpoint source categories including irrigated agriculture, non-irrigated agriculture, livestock grazing, feedlots, mining (coal and non-coal), silviculture, home disposal, urban runoff, solid wastes, residuals, hazardous materials, groundwater, construction, and hydrologic modification. In addressing nonpoint sources DRCOG must state, based on best available existing information, whether or not each category causes a water quality problem. For each nonpoint source problem category DRCOG must state the type of controls necessary to solve the problem.

2. EPA shall approve the regionwide assessment of nonpoint sources. This assessment was based on assuming loading factors for various urban and non-urban land use types (e.g., single family residential, dry land agriculture, etc.) and placing this information into a computer model for analysis. This analyses indicated that nonpoint sources are a regionwide problem. This assessment is adequate to promote the implementation of the type of control measures being recommended in the Clean Water Plan.

In order to promote the implementation of nonpoint source controls for urban runoff EPA proposes the following action.

> Prior to granting funds for construction or expansion of wastewater facilities, the general purpose governments within the proposed service area must show progress, in the form of ordinances adopted or recent efforts taken, towards implementing the nonpoint source controls recommended by the Clean Water Plan.

6. Maintenance of Stream Flows

The potential impact on stream flows from a change in the point of wastewater discharge needs to be more thoroughly evaluated on both a regional and project basis. Such an evaluation on a regional basis should consider, for some future year, the impact of all water and wastewater programs and projects on the attainability of water quality classifications for instream uses (fishing, swimming, boating, etc.).

The Clean Water Program has identified stream reaches with problems where the attainment of a fishery may be restricted by low flow conditions. Given the increasing level of interest in the Denver Region on wastewater reuse and exchange projects as a means of supplementing existing water supplies, future water and wastewater projects may further affect stream flows. These effects can have a beneficial or adverse effect on existing stream flows and thereby greatly influence the future attainability of water quality classifications for fishing and recreation.

EPA action on the issue of stream flow depletion which may result from wastewater projects will be:

1. To expect as part of the continuing 208 program, a regional evaluation of this flow depletion issue which considers the commulative effects of all wastewater treatment projects also considering changes in water supply requirements and methods of supply.

2. To require as part of each wastewater facilities plan an evaluation of the likely impacts of the project on seasonal stream flows and thus on potential and designated stream uses.

3. For each proposed facility, which will alter stream flows, the grantee will be required to consult with the Colorado Department of Natural Resources, (Parks and Outdoor Recreation Division and Wildlife Division) to determine the significance of this proposed change on existing or potential recreation and wildlife resources.

4. Where a proposed project may involve a water rights dispute, EPA will require reasonable assurances by the grantee that the dispute can be settled so as not to jepardize the usefulness of the project, including documented consultation with the State Engineer, prior to providing any funds for project construction.

7. Water Conservation

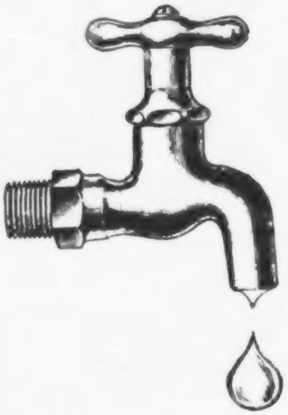
The Denver Metropolitan area is located in the semi-arid West where water is naturally scarce. In order to protect existing water uses as well as to provide for future development, the water resources available to this area must be carefully used, conserved and reused, wherever possible. The peak demand for water in the Denver region occurs during the summer lawn and farm irrigation season. Water conservation and reuse of wastewater can reduce this peak demand and may result in a reduction in the need for additional water supply facilities. Also, year-round conservation of water used in the home can benefit the total water supply situation and reduce needs for additional wastewater treatment capacity[illegible] This later savings is what EPA proposes to strongly encourage b[illegible] following proposed action.

EPA will require prior to making a grant for design of the wastewater facility that the applicant demonstrate that:

1. Metering, pricing and other regulatory and incentive measures (such as changes in plumbing code, or a program to retrofit plumbing fixtures) have or are being taken to reduce wastewater flows within the service area, and

2. The design capacity or other features of the facility reflect the reduction in wastewater flows.

   Wherever the dry weather wastewater base flow (excluding industrial flows) to be used for planning a treatment works exceeds 70 gallons/capita/day, EPA proposes that the applicant plan and implement a water conservation program and use the reduced flows as the measure of design capacity for new treatment facilities. As a guide, a 15 percent reduction in wastewater flow may be expected from the implementation of an in-house water conservation program.

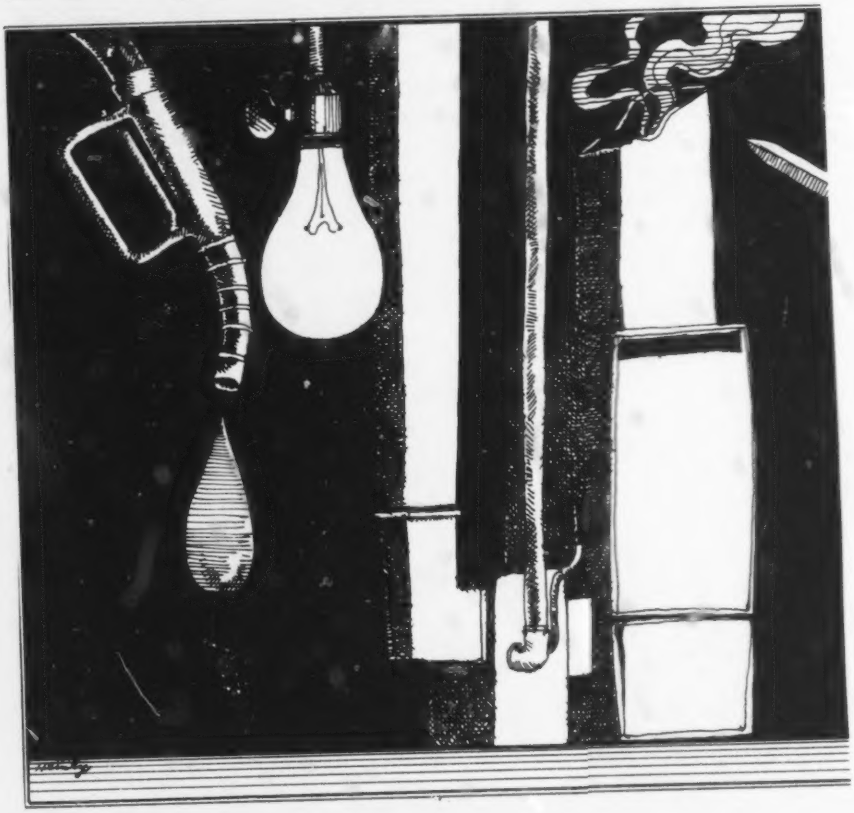


8. Energy Conservation

The EPA has the option of taking no action and assuming that the realities of energy pricing and availability will exert sufficient pressures so that energy conservation and recovery becomes a higher priority. Other policies regarding water conservation, reuse and land application, and effluent quality and treatment levels may also tend to reduce treatment facility energy demands. However, available technology and innovative techniques to use solar heat, and energy conservation and waste heat recovery in wastewater treatment facilities provide the potential for more immediate payoffs. Such technology has also been shown to improve facility reliability, and in many cases, reduce costs. It therefore appears reasonable and prudent that consideration of this technology be incorporated in facility planning and design.

The EPA proposes to adopt the following policy regarding energy conservation.

> As a requirement for receiving a grant for planning or design of any wastewater treatment works, the consideration of solar energy and energy conservation technology and techniques must be demonstrated by showing that energy requirements, particularly for natural gas, have been reduced as much as possible.



9. Protection of Environmentally Sensitive and Resource Areas

The EPA proposes to protect environmentally sensitive areas which may be impacted, directly or indirectly, by funding wastewater projects. Environmentally sensitive areas are defined by the 16 categories discussed in the Draft Regional Growth and Development Plan for the Denver Region (DRCOG, July 1977). Protection of these areas shall be required by EPA to be in accordance with the 19 Regional Development Policies listed in Appendix B (RDP 23 through RDP 41), with additional requirements for the protection of archaeological and historical resources.

The EPA proposed to adopt the following policies:

1. No treatment facility will be eligible for grant funds if sited in an environmentally sensitive area, unless
   a. there is no feasible alternative, and
   b. hazards and impacts have been mitigated in accordance with item 3 below and EPA's requirements for protection of archeological and historical resources stated below.
2. No grant for the portion of treatment capacity to serve development in an environmentally sensitive area(s) will be given unless hazards and impacts will be mitigated in accordance with item 3 below.
3. Facility siting and development served through EPA construction grants will be in accordance with the draft Regional Policies 23 through 41 which deal with protection of environmentally sensitive, resource and hazard areas, as published by the DRCOG, until such time as final policies and any subsequent revisions are adopted by DRCOG and agreed to by EPA.
4. EPA will use DRCOG's review of facility plans under its A-95 and 208 process, as one mechanism for determining consistency with the above established policies.

Additional efforts to protect archaeological and historical resources which shall be required for each project are:

1. An on-site cultural resource survey to be performed by a qualified professional archaeologist/historian to determine if the proposed project may directly impact previously undiscovered or unrecorded sites with results presented in the facilities plan.

2. A literature search for known, designated or undesignated sites to be conducted by the grantee and reported in the facilities plan.

3. Review and comment by the state Historic Preservation Officer on the adequacy and results of activities described under 1 and 2 above.

4. For projects located in areas of high potential for finding buried cultural resources, as determined by 1, 2 or 3 above, EPA shall require an on-site construction monitor who has authority to halt construction should a find of potential significance be made.

5. If a property or site which is listed or determined to be eligible for listing in the National Register of Historic Places, upon which the project will have an adverse effect, EPA shall consult with the State Historic Preservation Officer and the Advisory Council on Historic Preservation to determine a feasible and prudent alternative to avoid or satisfactorily mitigate the adverse effect.

10. Enhancement of Recreational Opportunities

The Clean Water Act amendments of 1977 added language to the effect that the EPA shall not make grants from funds authorized after September 30, 1978 unless the grant applicant has satisfactorily demonstrated that the applicant has analyzed the potential recreation and open space opportunities in the planning of proposed treatment works.

To insure that 201 facility plans comply with the Clean Water Act amendments of 1977, and to ensure that facility location and design is compatible with and enhances the recreational opportunities of proposed sites and locations, EPA proposed the following procedure.

> As part of the A-95 review process, DRCOG and the State shall be requested to make a finding that proposed facilities are compatible with existing, planned and proposed local and regional recreation facilities. Also the facility plans must analyze the potential for incorporating into the proposed project recreation and open space opportunities. EPA shall review the facility plans to determine if consideration of recreational aspects are adequate.

11. Funding of Wastewater Collection and Treatment Facilities for Northern Douglas County

EPA has not evaluated the impacts of growth and development in the Northern portion of Douglas County. This area may experience rapid development over the next 20 years and as a result, may significantly influence the environment of the Denver Region. The service areas for the Cherry Creek and Littleton/Englewood facility plans extend into Douglas County. In order to adequately address the effects of funding any extension of service into Douglas County, beyond what presently exists, EPA proposes the following action.

> EPA will not provide funds for extension of service into Douglas County through actions taken on the proposed Cherry Creek and Littleton/Englewood facility plans until:
>
> 1. Sufficient study and review of the probable effects of providing such service has been conducted, possibly leading to an environmental impact statement, and
>
> 2. Adequate population, land use and water quality planning for the area to be served is prepared and integrated into the Denver Regional Council of Governments regional plans and the State's Air Quality Implementation Plan.

12. Other Significant Problems and Study Needs

The ground-water issue is divided into the following three categories and EPA's recommended action is presented under each:

a. High nitrate levels in Thornton's and Brighton's domestic water supplies.

EPA shall require as part of the first 208 Plan update a more thorough analysis of the causes and recommended solution to this problem including a revised waste load allocation for MDSDD#1 if needed.

b. Effects on ground water with continued increased use for domestic water supply in the Region.

1. EPA shall expect the work plan that is developed for future 208 planning to include an activity that addresses ground water. Within this activity, priority should be placed on the relationship between continued use of these ground-water supplies to surface and ground-water quality.

2. EPA shall not participate in wastewater projects which are believed to involve adverse impacts to water quality from increased ground-water use.

c. Water quality effects, especially on ground water, of present and projected solid waste disposal practices and septic tanks.

1. EPA shall require as part of the first plan update a more thorough analysis of the relationship between solid waste disposal, septic tanks, and ground-water quality.

2. EPA shall require DRCOG to coordinate the Clean Water Plan with planning conducted under the Resources Conservation and Recovery Act.

Regarding the issue of Barr Lake the following action is recommended:

EPA shall request from the State a definition of the desired water quality for Barr Lake. EPA shall also request that the State, in cooperation with DRCOG, establish a priority for Barr Lake relative to other planning activities.

These action items fall in the category of continuing planning and future studies. EPA believes that it is not reasonable to require more, given the limited amount of existing information on the nature and extent of the problems.

V. PROBABLE CONSEQUENCES OF PROPOSED ACTIONS

SECTION V

PROBABLE CONSEQUENCES OF PROPOSED ACTIONS

Unavoidable Adverse Impacts

1. The region will continue to grow in both population and urbanized area at the expense of about 10,000 acres of prime agricultural land which is presently farmed within the adopted (year 2000) regional urban service areas.

2. Even with EPA's approval of the designated general purpose governments as wastewater management agencies, the existing and complex framework of governmental agencies, will continue to hinder coordination needed for implementing effective solutions to regional environmental problems like air quality, water quality, and water supply (conservation).

3. Development of the urban fringe is expected to continue with migration of the affluent and advantaged to the suburbs. Additional capacity for wastewater treatment facilities will serve these developing areas. Although there are some significant signs of neighborhood revitalization in the urban core, general physical and economic decline of the urban core is projected.

4. Until such time as population, land use and environmental planning for Douglas County is integrated into regional plans leading to the provision of regional services for the Northern portion of the county, services such as water supply and wastewater disposal will be supplied locally. The use of septic tanks for wastewater disposal and ground water for water supply in Northern Douglas County may adversely impact groundwater quality and quantity, depending upon the extent of such practices.

5. Overuse of urban parks and recreational facilities indicated by a decreasing park acreage per capita ratio will result in damage to some facilities and a lower valued recreational experience. The apparent difficulty and high cost associated with achieving year around the fishable and swimable water quality goals will further inhibit recreation in the Denver Region.

6. Particulate air pollution concentrations can be expected to increase in future years resulting in continued violation of the National Ambient Air Quality Standards and more frequent occurances of poor visability. The major sources for particulates will continue to be related to construction activities and materials on the streets thrown up by vehicular traffic.

7. Even with the implementation of a vehicle emissions inspection and maintenance program, carbon monoxide concentrations will exceed ambient standards in 1985. Peak ozone concentrations will continue to violate standards in the same year. In order to further reduce air pollution levels to within the National standards prior to 1985, significant reductions in vehicle miles traveled are expected to be required.

8. Implementation of the Local Alternative, advanced wastewater treatment (which is needed to meet existing water quality classifications) and non-structural controls for nonpoint pollution sources will result in an improvement in existing stream quality, but not to a degree sufficient to meet the fishable and swimable goals year around.

9. The cost of implementing non-structural nonpoint pollution controls recommended by the Clean Water Plan will cost local governments, land developers and ultimately the general public an estimated 29 million dollars annually over the next 20 years. The proposed improvements in wastewater treatment levels needed to meet the existing water quality classifications will cost 26 to 29 million dollars annually, which will be subsidized by federal grants for construction costs (75 percent).

10. In the absence of a regional authority with broad powers to implement programs for water quality management, water supply and attainment of air quality standards, additional responsibilities will fall on local governments and sanitation districts to coordinate and/or implement the proposed actions involving air quality, nonpoint pollution controls and water conservation.

Short-Term vs. Long-Term Benefits

In general the actions proposed by EPA are intended to produce long-term benefits while not jepardizing the more immediate benefits resulting from continuing to support the improvement and expansion of wastewater treatment facilities. Efforts to obtain the long-term benefits associated with proposed actions on air quality, wastewater reuse, nonpoint pollution control, water conservation, protection of environmentally sensitive areas, and recreation enhancement may cause a short, immediate delay in implementing the proposed wastewater treatment improvements. However, EPA believes that the integration of all of these potential benefits is vital to the improvement and maintenance of the Region's environment.

EPA will pursue the achievement of immediate water quality improvements through enforcement of effluent permit requirements and will expect compliance with the more stringent effluent requirements, based on availability of EPA construction grant funds. Where wastewater treatment improvements are needed to meet water quality standards, EPA will expect the applicant to move expeditiously in meeting the grant requirements.

Commitments of Resources

Implementation of the proposed wastewater facilities expansion and improvement will require an irretrievable consumption of construction materials, fuels, labor and federal grant funds.

The proposed actions will support planned future growth in the Region, with its implied commitment of resources. Specifically, the proposed actions will have the following resource implications.

1. Air Quality-Requires additional commitment by local governments to participate and implement measures needed to improve the Region's air quality. Reduced urban sprawl and dependance on the automobile reduces energy requirements while some air quality controls (e.g. emission control) require additional resources.

2. Water Quality-Requires additional federal and local resources to expand and improve wastewater treatment. Also additional effort required by DRCOG to justify the Clean Water Plans recommended downgradings.

3. Facilities Organization and Treatment - Implementation of local alternative may require a greater level of resource commitment in some areas (e.g. Clear Creek basin) than under the Regional Alternative. Greater conservation of organic and nutrient resources through promotion of wastewater reuse.

4. Management and Institutional Arrangements-Result in a shift in resource commitment from special service districts to general purpose governments.

5. Control of Nonpoint Pollution - Requires additional local resources for water quality control of urban runoff.

6. Maintenance of Stream Flows - Requires additional efforts by grant applicants, the State and DRCOG to evaluate stream flow implications. Where stream flows are augmented, water resource may be committed to instream uses and benefits.

7. Water Conservation - Results in conservation of water resource needed for urban use and attendent benefits in reducing need for additional water supply and wastewater treatment facilities. Additional resources required of local governments, water supply and wastewater treatment agencies to implement water conservation measures.

8. Energy Conservation - Results in reduced requirement for externally supplied energy in wastewater treatment.

9. Protection of Environmentally Sensitive and Resource Areas - Results in many land based resource benefits including; protection of development from flooding and geologic hazards, protection of groundwater quality, protection of significant wildlife habitats, and greater utilization of resources (e.g. sand and gravel, coal, prime agricultural soil) from productive lands. Reduces resource requirements for altering or supplementing naturally occurring resources with man induced resources (e.g. fertilizers).

10. Enhancement of Recreation Opportunities - Requires additional resources and efforts by the grant applicant, to integrate project into any existing or proposed recreational sites. Enhances existing recreational resource.

11. Funding of Wastewater Facilities for Northern Douglas County - Shifts resource requirements from federal and local governments to land developers.

12. Other Study Needs - Requires additional efforts by DRCOG in evaluating these special problems under the on-going Clean Water Program.

APPENDICES

Appendix A

State of Colorado
EXECUTIVE CHAMBERS
DENVER

RICHARD D. LAMM
Governor

20410

January 10, 1978

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JAN 13 1978
EPA REGION VIII
Water Division

Mr. Alan Merson
Regional Administrator
Environmental Protection Agency
1860 Lincoln
Denver, CO 80203

Dear Alan:

It is my pleasure to notify you of the State's approval of the 208 water quality management plan developed by the Denver Regional Council of Governments for the designated area of Adams, Arapahoe, Boulder, Denver, and Jefferson Counties and my conditional certification of that plan as the official State water quality management plan for that region. Attached are a copy of a letter to Mr. Donald DeDecker, Chairman of DRCOG, notifying him of our actions, a list of conditions of plan certification, and a briefing paper which summarizes the basis of our review and approval decisions. The State certification of this plan is consistent with the terms of certification contained in the program regulations, 40CFR Part 131.

The State congratulates DRCOG and its staff on the actions and basic information contained in the initial plan. The State is particularly supportive of the efforts made in defining regional population projections and allocations of those projections; in emphasizing the decentralization of wastewater facilities in the interest of total water management; in determining the general locations, timing, and capacities of future wastewater facilities; in taking the initial steps to define management agencies and responsibilities for those point sources; and in making initial assessments of the impacts of urban runoff on water quality.

In the interest of strengthening and expanding the basic features of the initial plan during the ongoing program, I have approved the attached conditions to this plan certification including a more detailed definition of my actions with respect to management agencies. Those general conditions are intended to provide supporting information regarding future stream classifications, future nonpoint source activities, and related more technically oriented water quality management aspects of the program. DRCOG is also being asked to coordinate the various projects being proposed for the northern suburban area communities for combined compatibility and effectiveness.

The actions which I am taking on the management system reflect a strong State interest in having plan implementation build upon the broad authorities and general responsibilities vested with general purpose governments. The management system proposed in the plan does include many of the municipalities of the region, but it does not include a management role for any of the counties. In the interest of strengthening the role of general purpose governments in the management system, I am designating the municipalities listed in the plan (including Northglenn, which was added by DRCOG at its meeting of December 21, 1977) and the Metropolitan Denver Sewage Disposal District Number 1 as management agencies. In addition, I am designating those special purpose districts that are in the process of receiving construction grant assistance or are scheduled to receive grant assistance in the near future and the St. Vrain-Left Hand Conservancy District as management agencies for a two-year period.

Finally, I am designating the Denver Regional Council of Governments as the ongoing planning agency for this program for the 5-county area. We believe that DRCOG has provided an excellent beginning for this program and will maintain the momentum created. We are aware that the extent of meeting the conditions contained herein will depend to a large degree upon the availability of ongoing program funds. We trust that adequate program funds for Colorado are forthcoming to permit the continuation of the overall 208 program.

The position taken herein has been developed with a broad base of assistance and support from pertinent State agencies and the Statewide 208 Policy Advisory Group and with close coordination of the DRCOG staff and officials. We are sensitive to the need to proceed promptly, especially in view of the linkage between the 208 plan and the Denver EIS and associated grant assistance for municipal wastewater facilities. Although the Attorney General's Office has recently advised the Water Quality Control Commission that it needs to hold a public hearing on the plan, we believe that it is prudent to certify the plan. I have asked the Commission to conduct the hearing as soon as practical. Following the the hearing, the State position as contained herein will be reviewed and revised as necessary to reflect the hearing results.

We hope that you will concur with our actions and promptly approve the plan as submitted. Please feel free to call on Jim Monaghan or Gary Broetzman should you or your staff care to discuss this further. We have appreciated the help provided by your office and trust that the cooperative effort underway with this program will continue.

Sincerely,

Richd D Lamm

Richard D. Lamm
Governor

attachment

STATE CONDITIONS OF PLAN CERTIFICATION

FOR THE DRCOG 208 PLAN

GENERAL CONDITIONS

1. DRCOG is to prepare a report in accordance with the attached outline which shall become an official part of the 208 final Clean Water Technical Report. The preparation shall be coordinated with the Water Quality Control Commission.

2. State certification of the plan does not mean endorsement of the recommended stream classifications. The recommendations included in the plan will be considered by the Commission to guide water quality decision-making during the period until the Commission reclassifies those streams according to the revised water quality stream classification system currently under consideration. When reclassifying the waters of the 5-county Denver regional area, the Commission will consider:

   a. recommendations and supporting information in the 208 plan.

   b. testimony presented at public hearings on the issue.

   c. recommendations and requirements of 208 plans for adjoining regions.

   d. goals, objectives, and requirements of appropriate State and Federal statutes and regulations.

3. DRCOG, with State assistance, is to revise the waste load allocations as necessary following stream reclassifications by the Commission. Such revisions shall be included in the first annual plan update provided that the streams are reclassified in time for this to be accomplished.

4. DRCOG is to include a time-phased strategy for achieving those adopted stream classifications by no later than the year 2000, if feasible, in the first annual plan update, provided the streams are reclassified in time for this to be accomplished.

5. DRCOG is to redefine, as necessary, the list of projects and their priorities set forth in the plan in the first annual plan update to conform to the construction grants priority system established by the Commission. Any projects considered of priority to the region but not recognized as such by the Commission's priority system are to be brought to the attention of the Commission.

6. The State will revise all NPDES discharge permits upon their expiration to conform with the waste load allocations (upon State adoption) referred to in condition 3 and other pertinent constraints called for in the plan and State regulations.

7. DRCOG is to give priority to assisting the pertinent municipalities and the Water Quality Control Commission in resolving the apparent conflicting wastewater treatment proposals in the Broomfield, Westminster, Northglenn, and Thornton area to assure that the final solution for that area best meets the goals of P.L. 92-500.

8. The first annual plan update is to include a definition of the processes that are being or will be followed in identifying and controlling nonpoint sources resulting from urban runoff, construction, irrigated and dry-land agriculture, and septic tank systems consistent with the State's nonpoint source framework (scheduled to be completed in early 1978). That definition of processes is to include the objectives, long- and short-term remedial measures, management agencies and functions and possible regulatory controls. A draft of this work should be made available to the State for its review and comment prior to its inclusion in the first annual plan update.

9. Although the population projections and allocations are compatible with the projections currently published by the Divison of Planning, Department of Local Affairs, these have not been completely analyzed yet under the air quality and transportation planning programs within the region. Consequently, as air quality and transportation plans are developed and refined, the region's 208 plan will have to be reviewed and perhaps revised.

10. DRCOG is to meet with the elected officials of city and county governments within 6 months of the date of State certification to explain the principal features of the 208 plan and how local plans can best be modified to support this regional program. In conjunction with the first annual plan update, DRCOG will assess the progress of local plan revisions to reflect the region's 208 plan.

11. The State will review and revise its overall position on this plan as necessary to reflect the results of a public hearing to be conducted by the Water Quality Control Commission.

ACTIONS ON MANAGEMENT AGENCIES

1. The municipalities included in the plan as amended (Aurora, Arvada, Brighton, Denver, Glendale, Deer Trail, Lafayette, Louisville, Littleton, Englewood, Broomfield, Westminster, Boulder, Nederland, and Northglenn) and the Metropolitan Denver Sewage Disposal District Number 1 are designated as management agencies.

2. In conjunction with the first annual plan update, the management agency status for Northglenn is to be reviewed in relation to State and Federal actions on the Northglenn project.

3. The South Lakewood Sanitation District, South Adams County Water and Sanitation District, and the Erie Water and Sanitation District are designated as management agencies for their defined 201 facilities planning area for a two-year period. The St. Vrain-Left Hand Conservancy District is also designated as a management agency for the portion of the St. Vrain basin within Boulder County for a two-year period conditioned upon the development of contractual arrangements between the District and the municipalities to be served.

4. Within one year of plan certification, DRCOG, in close working cooperation with appropriate counties and the major cities not identified as management agencies, is to reevaluate the management agency recommendations covering:

   a. Jefferson County Mountain Area
   b. Boulder County Area
   c. Special Purpose Districts

The reevaluation should focus on establishing an active management role for general purpose governments for point source management in these areas. The following criteria should be used in establishing revised management agency recommendations:

   a. have management jurisdiction over the entire area and replace the provision for temporary management agencies contained in the plan.
   b. have capabilities to relate decisions between growth and development and associated services.

c. provide for coordinated management over both point and nonpoint sources.

d. incorporate management responsibilities over package treatment plants and septic tanks.

In the evaluation of alternative proposals for determining management agencies, the principal consideration should be the identification of those entities that can best implement the broad goals and objectives and comply with the requirements of P.L. 92-500. Identification of management agencies in this process is to be completed within one year and submitted to the State for approval. At the end of the second year, the necessary agreements and contractual arrangements need to be in effect to permit operation of the management system.

OUTLINE OF ADDENDUM OF TECHNICAL REPORT TO DRCOG 208 PLAN

I. INTRODUCTION

  A. Overview of the DRCOG Clean Water Program
  B. Purpose of the Report
  C. Use of the Report

II. CHERRY CREEK BASIN

  A. Existing Situation in the Basin

    1. Water Quality Conditions
    2. Point Source Discharges
    3. Nonpoint Sources of Pollution
    4. Water Supply Intake (surface and groundwater)
    5. Existing Groundwater Conditions

  B. Environmental Considerations in the Basin

    1. General Environmental Aspects
    2. Impacts on Stream Classifications

  C. Financial Considerations of Alternative Stream Classifications

    1. Costs to Meet the 1983 Goal
    2. Alternative Stream Classifications
    3. Required Facilities and Associated Costs
    4. Recommended Stream Classifications
    5. Criteria for Classification Recommendations
    6. Financial Plan for Attaining the Recommended Classifications
    7. Recommended Solutions for Groundwater Problems

  D. Public Involvement Considerations (only where such documentation clarifies the basis for the recommendations)

    1. General Public and Citizen Group Meetings
    2. Water Quality Management Task Force Recommendations
    3. Public Hearing Comments

III. OTHER BASINS UTILIZING THE CHERRY CREEK BASIN OUTLINE

  St. Vrain Creek Basin
  Clear Creek Basin
  Bear Creek Basin
  Sand Creek Basin
  -etc-

IV. REGIONAL PERSPECTIVE

  A. Stream Classification Recommendations
  B. Point Source Recommendations
  C. Nonpoint Source Recommendations
  D. Groundwater Improvement and Maintenance Recommendations

APPENDIX B

PLAN POLICIES

1. A POPULATION LEVEL BELOW 2,350,000 SHOULD BE ENCOURAGED FOR THE FIVE-COUNTY DENVER METROPOLITAN AREA BY THE YEAR 2000. IN ALL PLANNING ACTIVITIES CONDUCTED BY THE DENVER REGIONAL COUNCIL OF GOVERNMENTS, A YEAR 2000 FORECAST OF 2,350,000 PEOPLE FOR THE FIVE-COUNTY DENVER METROPOLITAN AREA WILL BE USED.

2. A STABLE AND DIVERSIFIED ECONOMY, WHICH PROVIDES ADEQUATE EMPLOYMENT OPPORTUNITIES FOR THE REGION'S POPULATION, SHOULD BE ENCOURAGED FOR THE DENVER REGION. IN ALL PLANNING ACTIVITIES CONDUCTED BY THE DENVER REGIONAL COUNCIL OF GOVERNMENTS, A YEAR 2000 FORECAST OF 1,130,500 JOBS FOR THE FIVE-COUNTY DENVER METROPOLITAN AREA WILL BE USED.

3. THE CENTRAL BUSINESS DISTRICT OF DENVER WILL BE ENCOURAGED AS THE MAJOR HIGH DENSITY CORE OF BUSINESS, CULTURAL, GOVERNMENTAL, COMMERCIAL AND RESIDENTIAL ACTIVITY.

4. REGIONAL ACTIVITY CENTERS, WITH AN INTENSIVE MIX OF URBAN ACTIVITIES, SHOULD BE ENCOURAGED IN THE DENVER REGION AND SHALL BE DESIGNATED AND IMPLEMENTED IN ACCORDANCE WITH ADOPTED POLICIES AND CRITERIA.

5. NEW DEVELOPMENT SHOULD BE ENCOURAGED ONLY IN LOCATIONS CONTIGUOUS TO EXISTING URBAN AREAS WHILE RECOGNIZING LOCAL ECONOMIC, ENVIRONMENTAL AND SOCIAL CONCERNS AS THEY MIGHT AFFECT THE LOCATION OF A SPECIFIC DEVELOPMENT.

6. MAJOR NEW EMPLOYMENT CONCENTRATIONS OF ANY TYPE SHOULD BE CLOSELY ANALYZED AS TO THEIR TOTAL REGIONAL IMPACT, WHICH ANALYSIS SHOULD CAREFULLY CONSIDER TRANSPORTATION, URBAN FACILITIES AND SERVICES, ECONOMIC AND SOCIAL CONSIDERATIONS AND ENVIRONMENTAL IMPACTS.

7. PRESENT FREESTANDING COMMUNITIES WITHIN THE DENVER REGION WILL BE ENCOURAGED TO REMAIN FREESTANDING AND TO RETAIN THEIR SEPARATE IDENTITIES AND UNIQUE CHARACTERISTICS.

8. NEW DEVELOPMENT SHOULD OCCUR ONLY IN LOCATIONS WHERE ALL THE NECESSARY SERVICES REQUIRED TO SUPPORT URBAN DEVELOPMENT ARE PRESENT OR WILL BE PROVIDED.

9. DEVELOPMENT WITHIN ENVIRONMENTALLY SIGNIFICANT AREAS SUCH AS ENVIRONMENTAL HAZARD AREAS, ENVIRONMENTALLY SENSITIVE AREAS, AND NATURAL RESOURCE AREAS SHOULD BE PROHIBITED, RESTRICTED, OR APPROPRIATELY MANAGED SUCH THAT THE DEVELOPMENT WILL NOT HAVE SIGNIFICANT, ADVERSE IMPACTS ON THE ENVIRONMENT AND THE ENVIRONMENT WILL NOT POSE SERIOUS HAZARDS TO THE DEVELOPMENT.

10. THE PROTECTION, PRESERVATION, AND CONSERVATION OF OPEN SPACE AS A NATURAL RESOURCE, AN ENVIRONMENTAL HAZARD TO DEVELOPMENT, A RECREATIONAL OPPORTUNITY AND A SHAPER OF DEVELOPMENT SHOULD BE ENCOURAGED.

11. NEW DEVELOPMENT SHOULD BE ENCOURAGED IN LOCATIONS AND IN PATTERNS WHICH CONSERVE AND MAKE THE MOST EFFICIENT USE OF ENERGY AND SHOULD BE CAREFULLY ANALYZED AS TO THE IMPACT ON ENERGY CONSUMPTION. PROPOSALS FOR THE DEVELOPMENT OF ENERGY RESOURCES IN THE REGION SHOULD BE CAREFULLY EXAMINED AS TO THEIR SOCIAL, ECONOMIC AND ENVIRONMENTAL IMPACTS.

12. THE REGIONAL HOUSING PLAN DIRECTED AT THE PROVISION OF A DECENT HOME FOR EVERY FAMILY, AND IN PARTICULAR, THE LOW AND MODERATE INCOME GROUPS, SHALL BE AN INTEGRAL COMPONENT OF ALL DENVER REGIONAL COUNCIL OF GOVERNMENTS' LAND USE PLANNING ACTIVITIES AND PARTICULARLY IN RELATION TO TRANSPORTATION, EMPLOYMENT OPPORTUNITIES, AND SOCIAL SERVICES.

REGIONAL DEVELOPMENT POLICIES

AREAWIDE POLICIES

A. Urban Development

1. URBAN DEVELOPMENT SHOULD OCCUR ONLY IN DEFINED URBAN DEVELOPMENT AREAS--URBAN SERVICE AREAS, RURAL TOWN CENTERS AND MOUNTAIN DEVELOPMENT AREAS. MOST REGIONAL GROWTH WILL BE ACCOMMODATED IN URBAN SERVICE AREAS, WHILE SMALL AMOUNTS OF REGIONAL GROWTH WILL BE ACCOMMODATED IN RURAL TOWN CENTERS AND MOUNTAIN DEVELOPMENT AREAS.

2. URBAN DEVELOPMENT SHOULD NOT OCCUR IN THE NON-URBAN AREAS OF THE REGION.

3. NON-URBAN DEVELOPMENT IN NON-URBAN AREAS SHOULD TAKE PLACE ONLY IF:

   (1) THE DEVELOPMENT WILL NOT HAVE A SIGNIFICANT ADVERSE IMPACT UPON REGIONAL SYSTEMS AND WILL NOT REQUIRE THE USE OR EXTENSION OF REGIONAL SERVICE SYSTEMS.

   (2) THE DEVELOPMENT WILL NOT HAVE AN ADVERSE IMPACT ON THE NATURAL ENVIRONMENT.

   (3) IT CAN BE DEMONSTRATED BY THE COUNTY AND OTHER AFFECTED LOCAL GOVERNMENTS AND DISTRICTS THAT THE PRESENT CAPACITIES OF ROADS AND SCHOOLS ARE ADEQUATE, ADEQUATE COUNTY LAW ENFORCEMENT AND RURAL FIRE PROTECTION ARE AVAILABLE, AND THE PROPOSED DEVELOPMENT CAN BE ADEQUATELY SERVED BY ON-SITE WATER AND SEWER ACCORDING TO LOCAL AND STATE REGULATIONS.

4. URBAN SERVICE AREAS SHOULD ACCOMMODATE MOST OF THE FUTURE GROWTH AND DEVELOPMENT IN THE DENVER REGION.

5. URBAN SERVICE AREAS SHOULD BE DEFINED OR MODIFIED BY LOCAL GOVERNMENTS BASED ON THE FOLLOWING CRITERIA:

(1) AN URBAN SERVICE AREA IS AN AREA IN WHICH A LOCAL GOVERNMENT PLANS TO SUPPORT URBAN DEVELOPMENT AND RENEWAL WITH URBAN SERVICES.

(2) AN URBAN SERVICE AREA SHOULD BE DEFINED BASED ON THE ABILITY AND CAPACITY OF LOCAL GOVERNMENT TO SERVE THE AREA WITH SERVICES NECESSARY TO SUPPORT URBAN DEVELOPMENT.

(3) AN URBAN SERVICE AREA SHOULD MAXIMIZE THE USE OF EXISTING INVESTMENT IN WATER AND SEWER FACILITIES, HIGHWAYS, PARKS, TRANSIT SERVICE, AND OTHER REGIONAL AND LOCAL SERVICES, AND MINIMIZE THE COST OF PROVIDING ADDITIONAL SERVICES.

(4) AN URBAN SERVICE AREA SHOULD INCLUDE ENOUGH DEVELOPABLE LAND TO ACCOMMODATE FORECASTED DEMANDS IN THE SHORT AND LONG RANGE DEVELOPMENT PERIOD.

(5) AN URBAN SERVICE AREA SHOULD BE DEFINED IN TERMS OF TIME AND IS POSSIBLE THE BOUNDARY OF THE AREA SET TO MEET FORECASTED NEEDS IN THE SHORT RANGE TO 1985/1990 AND THE LONG RANGE TO THE YEAR 2000.

6. THE EXTENT AND STAGING OF DEVELOPMENT WITHIN AN URBAN SERVICE AREA SHOULD BE BASED TO A LARGE EXTENT ON THE ABILITY OF LOCAL GOVERNMENT TO PROVIDE THE NECESSARY URBAN SERVICES WITHIN THE URBAN SERVICE AREA.

7. REGIONAL SYSTEMS AND THE FULL RANGE OF URBAN SERVICES SHOULD BE PROVIDED ONLY WITHIN URBAN SERVICE AREAS, LOCAL OR COMMUNITY SERVICES SHOULD BE PROVIDED IN MOUNTAIN DEVELOPMENT AREAS AND RURAL TOWN CENTERS, AND ONLY LIMITED COUNTY AND RURAL SERVICES SHOULD BE PROVIDED IN NON-URBAN AREAS.

8. EXISTING SERVICE SYSTEMS SHOULD BE USED TO FULL CAPACITY.

9. THE MAINTENANCE AND REPLACEMENT OF SYSTEMS AND SERVICES SUPPORTING EXISTING DEVELOPMENT SHOULD HAVE PRIORITY OVER THE EXPANSION OF SYSTEMS AND SERVICES TO NEW DEVELOPMENT.

10. PROVISION OF EXCESS SERVICE CAPACITY SHOULD BE LIMITED TO THE PROJECTED NEED IN THE SHORT-TERM (10 YEAR) PERIOD UNLESS APPROPRIATE ANALYSIS DETERMINES SUCH SERVICE CAPACITY TO BE COST EFFECTIVE.

11. RESIDENTIAL DEVELOPMENT SHOULD BE LOCATED WITH CONVENIENCE AND CHOICE IN ACQUIRING GOODS AND SERVICES.

12. RESIDENTIAL DEVELOPMENT SHOULD BE LOCATED IN CLOSE PROXIMITY TO REGIONAL ACTIVITY CENTERS AND OTHER ACTIVITY CONCENTRATIONS OF RETAIL SHOPS, COMMERCIAL SERVICES AND EMPLOYMENT OPPORTUNITIES.

13. NEW RESIDENTIAL DEVELOPMENT SHOULD OCCUR THROUGHOUT THE REGION WITH A DIVERSITY OF HOUSING TYPES AND COSTS.

14. EMPLOYMENT AREAS SHOULD BE LOCATED CONVENIENT TO THE TRANSPORTATION SYSTEM.

15. A MORE BALANCED DISTRIBUTION OF EMPLOYMENT IN RELATION TO POPULATION DISTRIBUTION SHOULD BE ENCOURAGED THROUGHOUT THE REGION.

16. HIGH LEVELS AND MIXES OF EMPLOYMENT OPPORTUNITIES SHOULD BE ENCOURAGED AT CENTERS OF ACTIVITY.

17. REGIONAL ACTIVITY CENTERS ARE AREAS WITH AN INTENSIVE MIX OF URBAN ACTIVITIES. REGIONAL ACTIVITY CENTERS ARE MULTI-PURPOSE CENTERS IN THAT THEY MAY INCLUDE RESIDENTIAL, EMPLOYMENT, COMMERCIAL, RECREATIONAL, MEDICAL, CULTURAL, GOVERNMENTAL AND EDUCATIONAL ACTIVITIES. EACH CENTER SHOULD CONTAIN AT A MINIMUM SIGNIFICANT LEVELS OF INTENSE RESIDENTIAL, EMPLOYMENT AND COMMERCIAL ACTIVITY. AN ACTIVITY CENTER SHOULD COVER A RELATIVELY SMALL GEOGRAPHICAL AREA.

18. THE PRIMARY RESPONSIBILITY FOR THE PLANNING AND IMPLEMENTATION OF REGIONAL ACTIVITY CENTERS RESTS WITH LOCAL GOVERNMENTS AND THE PRIVATE MARKET. LOCAL GOVERNMENTS SHOULD FACILITATE THE DEVELOPMENT OF REGIONAL ACTIVITY CENTERS THROUGH ACTIONS CONSISTENT WITH ADOPTED REGIONAL POLICY AND CRITERIA. LOCAL ACTIONS SHOULD INCLUDE:

    (1) ADOPTION OF THE ACTIVITY CENTER CONCEPT AND THE SPECIFIC DESIGNATION OF CENTERS IN THE OFFICIAL COMPREHENSIVE PLAN FOR THE LOCAL JURISDICTION.

(2) PREPARATION OF SPECIFIC PLANS AND PROGRAMS FOR THE DEVELOPMENT OF DESIGNATED REGIONAL ACTIVITY CENTERS. SUCH PLANS AND PROGRAMS SHOULD DEFINE THE GEOGRAPHIC AREA, THE TYPES AND LEVELS OF ACTIVITIES, THE ANTICIPATED STAGING AND TIMING OF DEVELOPMENT, THE GENERAL DESIGN CHARACTERISTICS, AND REQUIRED PUBLIC AND PRIVATE ACTIONS FOR IMPLEMENTATION.

(3) PROVISION OF ADEQUATE GROWTH MANAGEMENT TOOLS TO PROMOTE DEVELOPMENT OF THE ACTIVITY CENTER.

(4) ENCOURAGING PRIVATE MARKET DECISIONS WHICH PROMOTE THE DEVELOPMENT OF ACTIVITY CENTERS.

19. THE DENVER REGIONAL COUNCIL OF GOVERNMENTS SHOULD SUPPORT LOCAL PLANNING AND DEVELOPMENT OF REGIONAL ACTIVITY CENTERS THROUGH APPROPRIATE ACTIONS TO:

(1) INCORPORATE THE ACTIVITY CENTER POLICY AS A MAJOR ELEMENT IN REGIONAL TRANSPORTATION PLANNING AND REGIONAL FACILITIES PLANNING.

(2) PROVIDE URBAN SYSTEMS FUNDS TO PROJECTS WHICH INCREASE THE ACCESSIBILITY TO AND THE MOBILITY WITHIN ACTIVITY CENTERS.

(3) ENCOURAGE THE PROVISION OF HIGH LEVELS OF PUBLIC TRANSPORTATION TO ACTIVITY CENTERS.

(4) ENCOURAGE THE PROVISION OF STATE AND FEDERAL HOUSING FUNDS TO PROJECTS WITHIN ACTIVITY CENTERS.

(5) PROVIDE TECHNICAL PLANNING ASSISTANCE TO AID LOCAL GOVERNMENTS IN THE PLANNING AND IMPLEMENTATION OF ACTIVITY CENTERS.

(6) CONTINUOUSLY MONITOR AND APPRAISE THE DEVELOPMENT OF DESIGNATED REGIONAL ACTIVITY CENTERS.

20. THE DRCOG HAS DESIGNATED 12 REGIONAL ACTIVITY CENTERS WHICH HAVE THE POTENTIAL TO BECOME CENTERS OF INTENSE, MULTI-PURPOSE REGIONAL ACTIVITIES. THE DESIGNATED CENTERS SHOULD BE PERIODICALLY EVALUATED BY THE DRCOG IN COOPERATION WITH LOCAL GOVERNMENTS TO DETERMINE

IF THESE AREAS ARE IN FACT DEVELOPING AS REGIONAL CENTERS, AND STILL REMAIN AS VIABLE ELEMENTS OF THE REGIONAL PLAN. NON-VIABLE CENTERS SHOULD BE DELETED FROM THE REGIONAL PLAN.

21. NEW REGIONAL ACTIVITY CENTERS SHOULD BE ADDED TO THE REGIONAL PLAN IF IT CAN BE DEMONSTRATED THAT THEY ARE CONSISTENT WITH REGIONAL POLICY AND CRITERIA. THE DESIGNATION AND LOCATION OF ADDITIONAL ACTIVITY CENTERS SHOULD BE BASED ON THE FOLLOWING CRITERIA:

    (1) A REGIONAL ACTIVITY CENTER SHOULD BE LOCATED IN AN AREA WHICH HAS AN EXISTING NUCLEUS OF ACTIVITY AND WHICH HAS THE POTENTIAL FOR DEVELOPING INTO AN INTENSIVE MULTI-PURPOSE CENTER AS DEFINED.

    (2) THE SITE OF A REGIONAL ACTIVITY CENTER SHOULD BE ACCESSIBLE BY MAJOR THOROUGHFARES AND SHOULD BE SERVED BY HIGH LEVELS OF PUBLIC TRANSPORTATION SERVICE TO THE CENTER AND WITHIN THE CENTER.

    (3) REGIONAL ACTIVITY CENTERS SHOULD BE LOCATED SUCH THAT ADVERSE IMPACTS ON THE ENVIRONMENT ARE MINIMIZED.

    (4) REGIONAL ACTIVITY CENTERS SHOULD NOT BE LOCATED IN CLOSE PROXIMITY TO EACH OTHER SUCH THAT THEY COMPETE FOR A LIMITED AMOUNT OF HIGH DENSITY ACTIVITIES.

    (5) REGIONAL ACTIVITY CENTERS SHOULD BE LOCATED IN AREAS WHICH CAN BE MOST EFFECTIVELY PROVIDED WITH HIGH LEVELS OF URBAN SERVICES AND UTILITIES.

    (6) THE DESIGNATION OF REGIONAL ACTIVITY CENTERS SHOULD BE BASED IN PART ON THE MARKET POTENTIALS FOR SUCH CENTERS.

    (7) THERE SHOULD BE A DEMONSTRATION OF LOCAL COMMITMENT TO THE SUCCESSFUL DEVELOPMENT OF THE CENTER.

22. SUBREGIONAL AND COMMUNITY ACTIVITY CONCENTRATIONS SHOULD BE ENCOURAGED TO DEVELOP WITHIN THE REGION AS LONG AS THEY DO NOT DETRACT FROM OR COMPETE WITH REGIONAL ACTIVITY CENTER DEVELOPMENT.

B. Environmentally Significant Areas

23. DEVELOPMENT SHOULD NOT OCCUR WITHIN THE LIMITS OF THE 100-YEAR FLOODPLAIN NOR SHOULD ANY FILLING IN OF THE FLOODPLAIN THAT WOULD REDUCE ITS FLOOD CARRYING CAPACITY. PARKS, RECREATION AND OPEN SPACE USES ARE ENCOURAGED IN FLOODPLAIN AREAS.

24. DEVELOPMENT SHOULD NOT OCCUR IN WILDFIRE HAZARD AREAS UNLESS ADEQUATE WILDFIRE HAZARD MITIGATION MEASURES HAVE BEEN IMPLEMENTED.

25. DEVELOPMENT SHOULD NOT OCCUR ON IDENTIFIED LANDSLIDE DEPOSITS OR POTENTIAL LANDSLIDE HAZARD AREAS UNLESS THE HAZARD CAN BE MITIGATED THROUGH ENGINEERING DESIGN AFTER A CAREFUL SITE AND SUB-SURFACE INVESTIGATION AND EVALUATION BY A QUALIFIED ENGINEERING GEOLOGIST.

26. DEVELOPMENT SHOULD NOT OCCUR IN SUBSIDENCE HAZARD AREAS UNLESS THE HAZARD CAN BE SAFELY MITIGATED OR IT CAN BE PROVEN THAT LITTLE OR NO RISK OF DAMAGE EXISTS ON THE SPECIFIC SITE. FEDERAL, STATE AND LOCAL AGENCIES ARE ENCOURAGED TO MAKE A BETTER DETERMINATION OF THE EXTENT OF SUBSIDENCE HAZARD RISK IN IDENTIFIED SUBSIDENCE HAZARD AREAS.

27. DEVELOPMENT IN AREAS OF SHRINK-SWELL SOIL HAZARD SHOULD OCCUR ONLY AFTER APPROPRIATE AND EFFECTIVE MITIGATION MEASURES, AS DETERMINED BY QUALIFIED SOIL ENGINEERS, HAVE BEEN TAKEN TO LESSEN THE POTENTIAL FOR STRUCTURAL DAMAGE.

28. DEVELOPMENT SHOULD NOT OCCUR OVER ACTIVE FAULTS. DEVELOPMENT ADJACENT TO INACTIVE FAULTS SHOULD BE DESIGNED SUCH THAT SEPTIC SYSTEM LEACH FIELDS ARE LOCATED FAR ENOUGH AWAY FROM THE FAULTS TO AVOID THE POSSIBILITY OF LEAKAGE OF CONTAMINANTS THROUGH THE FAULTS TO THE GROUNDWATER SUPPLY.

29. DEVELOPMENT IN SIGNIFICANT WILDLIFE HABITAT AREAS (AREAS OF VERY HIGH DENSITY AND PRODUCTION) SHOULD OCCUR ONLY AFTER AN EVALUATION OF THE SITE HAS BEEN MADE BY THE COLORADO DIVISION OF WILDLIFE AND IT IS DETERMINED THAT THE IMPACT ON WILDLIFE HABITAT IS NOT ADVERSE OR THE ADVERSE IMPACT IS MITIGATED.

30. DEVELOPMENT IN AREAS WHICH CONTAIN COMMERCIALLY FEASIBLE DEPOSITS OF SAND, GRAVEL AND QUARRY AGGREGATE SHOULD NOT OCCUR UNTIL THE DEPOSITS ARE EXTRACTED OR IT CAN BE SHOWN THAT EXTRACTION WOULD CAUSE SERIOUS, ADVERSE IMPACTS ON EXISTING DEVELOPMENT.

31. DEVELOPMENT IN AREAS WHICH CONTAIN COMMERCIALLY FEASIBLE DEPOSITS OF COAL SHOULD NOT INTERFERE WITH THE PRESENT OR FUTURE EXTRACTION OF THE COAL DEPOSITS, UNLESS IT CAN BE SHOWN THAT EXTRACTION WOULD HAVE SERIOUS, ADVERSE IMPACTS ON EXISTING DEVELOPMENT. FEDERAL, STATE AND LOCAL GOVERNMENTS ARE ENCOURAGED TO MAKE A BETTER DETERMINATION OF THE LOCATIONS AND EXTENT OF COMMERCIALLY FEASIBLE COAL DEPOSITS WITHIN THE DENVER REGION.

32. DEVELOPMENT OVER KNOWN OIL AND GAS FIELDS SHOULD OCCUR ONLY AT NON-URBAN DENSITIES AND IN USES WHICH DO NOT INTERFERE WITH THE EXTRACTION OF THESE RESOURCES.

33. DEVELOPMENT SHOULD NOT OCCUR ALONG THE IDENTIFIED AQUIFER RECHARGE AREAS OF THE LARAMIE-FOX HILLS BEDROCK AQUIFER. LAND USES SUCH AS WASTE INJECTION WELLS AND SANITARY LANDFILLS SHOULD NOT BE PERMITTED OVER ALLUVIAL AQUIFERS OR ABOVE RECHARGE AREAS TO SHALLOW BEDROCK AQUIFERS.

34. THE PRESERVATION OF PRIME FARMLAND SHOULD BE ENCOURAGED IN THE DENVER REGION BASED UPON A WELL DEFINED PROGRAM(S) THAT IS EQUITABLE TO BOTH THE AGRICULTURAL COMMUNITY AND THE REGION AND WHICH INVOLVES THE PARTICIPATION OF ALL UNITS AND LEVELS OF GOVERNMENT. PRIME FARMLANDS SHOULD BE DEFINED AND DESIGNATED FOR THE DENVER REGION.

35. DEVELOPMENT SHOULD NOT BE PERMITTED IN PRESENTLY IDENTIFIED AREAS OF PRIME AGRICULTURAL SOILS WHICH ARE LOCATED IN THE NON-URBAN AREAS OF THE DENVER REGION.

36. EXISTING AND PROPOSED PARK, RECREATION AND OPEN SPACE AREAS THAT HAVE BEEN DESIGNATED IN THE ADOPTED DRCOG REGIONAL PARKS, RECREATION AND OPEN SPACE DEVELOPMENT PLAN SHOULD NOT BE DEVELOPED IN OTHER USES.

37. THE DEVELOPMENT OF OUTDOOR RECREATION FACILITIES THAT SERVE THE VARIETY OF IDENTIFIED NEEDS AND MAXIMIZE ACCESSIBILITY AND USE SHOULD BE ENCOURAGED IN THE DENVER REGION.

38. THE AQUISITION OF OPEN SPACE SHOULD BE ENCOURAGED IN ADVANCE OF URBANIZATION WHEREVER POSSIBLE TO PRESERVE OPEN SPACE, PROTECT THE ENVIRONMENT AND TO SHAPE URBAN DEVELOPMENT.

39. HISTORICAL PLACES WHICH HAVE BEEN DESIGNATED ON EITHER THE STATE OR NATIONAL REGISTERS SHOULD BE PRESERVED.

40. THE IDENTIFICATION AND PRESERVATION, RESTORATION OR REHABILITATION OF SIGNIFICANT HISTORIC STRUCTURES, SITES AND DISTRICTS BY LOCAL COMMUNITIES SHOULD BE ENCOURAGED.

41. DEVELOPMENT IN A DESIGNATED ARCHAEOLOGICAL RESOURCE AREA SHOULD PROVIDE FOR THE PERMANENT PRESERVATION OF THE RESOURCE OR PROVIDE FOR THE COMPLETION OF THE NECESSARY AND APPROPRIATE STUDY AND WORK AS SPECIFIED BY THE OFFICE OF THE STATE ARCHAEOLOGIST BEFORE ANY ASPECT OF DEVELOPMENT BEGINS.

C. Regional Activity Allocations

42. ADOPTED REGIONAL SUBAREA POPULATION AND EMPLOYMENT ALLOCATIONS SHALL BE USED FOR ALL PLANNING ACTIVITIES OF THE DRCOG, AND ADDITIONAL ALLOCATIONS CONSISTENT WITH THE ADOPTED SUBAREA ALLOCATIONS FOR SUCH GEOGRAPHIC AREAS AS MAY BE NECESSARY AND APPROPRIATE TO THE CONDUCT OF REGIONAL PLANNING ACTIVITIES SHOULD BE PREPARED.

43. AN ANNUAL ASSESSMENT OF THE REGIONAL POPULATION AND EMPLOYMENT FORECASTS AND ALLOCATIONS BASED ON THE FOLLOWING CRITERIA SHALL BE CONDUCTED:

    (1) ALL LOCAL PROJECTIONS AND POLICIES AND RELEVANT TECHNICAL STUDIES AND INFORMATION PROVIDED BY LOCAL GOVERNMENTS.

(2) CURRENT REGIONAL POPULATION AND EMPLOYMENT ESTIMATES FOR CENSUS TRACTS, COUNTIES, MUNICIPALITIES AND URBAN SERVICE AREAS.

(3) CHANGES IN POPULATION, EMPLOYMENT AND OTHER MEASURES OF DEVELOPMENT SINCE THE LAST U.S. CENSUS.

(4) ANY SURVEYS, STUDIES OR ASSESSMENTS OF PRESENT AND FUTURE GROWTH AND DEVELOPMENT MADE BY THE DRCOG DURING THE PRECEEDING YEAR.

(5) FEDERAL AND STATE POLICIES WHEN ESTABLISHED BY LAW OR ADMINISTRATIVE REGULATION.

THIS ASSESSMENT WILL PROVIDE THE BASIS FOR CONSIDERING CHANGES TO THE REGIONAL POPULATION AND EMPLOYMENT FORECASTS AND ALLOCATIONS. A CHANGE IN REGIONAL SUBAREA POPULATION AND EMPLOYMENT ALLOCATIONS SHALL BE CONSIDERED WHEN THE CHANGE CAN BE DEMONSTRATED TO HAVE SIGNIFICANT IMPACT ON PROJECTED SERVICE NEEDS USED IN PLANNING REGIONAL FUNCTIONAL SYSTEMS, OR WHEN AN ADOPTED PLAN OR POLICY, OR PLAN ELEMENT(S), IS SIGNIFICANTLY CHANGED.

44. THE APPROVED REGIONAL SUBAREA POPULATION AND EMPLOYMENT ALLOCATIONS SHALL BE USED FOR THE PURPOSE OF REVIEWING PROJECTS SUBMITTED TO THE DRCOG UNDER THE PROVISIONS OF FEDERAL OR STATE LAW, OR ADMINISTRATIVE REGULATIONS. THE FOLLOWING STANDARDS SHALL BE USED IN REVIEWING PROJECTS:

(1) IF THE PROJECTED RESIDENT POPULATION AND/OR EMPLOYMENT WHICH A PROPOSED PROJECT IS DESIGNED TO SERVE IS WITHIN 15% OF THE DRCOG REGIONAL SUBAREA POPULATION ALLOCATION, REGARDLESS OF THE SIZE OF THE NUMERICAL DIFFERENCE BETWEEN THE PROJECTION AND THE ALLOCATION, THE DRCOG STAFF WILL FIND THE PROJECTED RESIDENT POPULATION "CONSISTENT WITH REGIONAL POPULATION FORECASTS AND ALLOCATIONS" AND WILL SO COMMENT;

(2) IF THE PROJECTED RESIDENT POPULATION AND/OR EMPLOYMENT WHICH A PROPOSED PROJECT IS DESIGNED TO SERVE IS WITHIN 6,000 TO 20,000 PERSONS AND/OR 3,000 TO 10,000 JOBS OF THE APPROVED

REGIONAL SUBAREA ALLOCATION(S) AND THE NUMERICAL DIFFERENCE BETWEEN THE PROJECTION AND ALLOCATION IS MORE THAN 15% OF THE ALLOCATION, DRCOG STAFF SHALL REQUEST A TECHNICAL JUSTIFICATION OF THE PROJECTED RESIDENT POPULATION AND/OR EMPLOYMENT FROM THE APPLICANT AND SHALL INCLUDE AN EVALUATION OF SUCH JUSTIFICATION IN ANY COMMENT ON THE PROPOSED PROJECT. THE APPLICANT MAY APPEAL TO THE COUNCIL FOR A REVIEW OF THE COMMENTS ON THE PROPOSED PROJECT PREPARED BY THE DRCOG STAFF; AND

(3) IF THE PROJECTED RESIDENT POPULATION FOR WHICH A PROPOSED PROJECT IS DESIGNED TO SERVE IS MORE THAN 20,000 PERSONS AND/OR THE PROJECTED EMPLOYMENT IS MORE THAN 10,000 JOBS HIGHER THAN THE APPROVED REGIONAL SUBAREA ALLOCATION(S) AND THE NUMERICAL DIFFERENCE BETWEEN THE PROJECTION AND ALLOCATION IS MORE THAN 15% OF THE ALLOCATION, THE DRCOG STAFF SHALL REQUEST A TECHNICAL JUSTIFICATION OF THE RESIDENT POPULATION AND/OR EMPLOYMENT PROJECTION FROM THE APPLICANT. THE DRCOG STAFF SHALL INCLUDE AN EVALUATION OF THE TECHNICAL JUSTIFICATION IN COMMENTS ON THE PROPOSED PROJECT AND FORWARD THE COMMENTS TO THE COUNCIL PRIOR TO TRANSMITTAL OF THE COMMENTS TO THE APPLICANT.

DEVELOPMENT AREA POLICIES

A. Denver Central Business District

45. RESIDENTIAL DEVELOPMENT SHOULD BE ENCOURAGED WITHIN THE CBD.

46. RESIDENTIAL NEIGHBORHOODS ADJACENT TO THE DENVER CBD SHOULD BE IMPROVED AND MAINTAINED.

47. CONTINUED EMPLOYMENT GROWTH SHOULD BE ENCOURAGED IN THE DENVER CBD.

48. THE ACCESS TO THE DENVER CBD AND INTERNAL CIRCULATION WITHIN THE CBD SHOULD BE IMPROVED PRIMARILY THROUGH INVESTMENTS IN PUBLIC TRANSPORTATION.

49. THE ENVIRONMENTAL QUALITY WITHIN THE DENVER CBD SHOULD BE IMPROVED BY REDUCING AIR AND NOISE POLLUTION AND PROVIDING MORE OPEN SPACE OPPORTUNITIES.

B. Central City - City and County of Denver

50. THE HIGH LEVELS OF RESIDENTIAL QUALITY IN STABLE NEIGHBORHOODS SHOULD BE MAINTAINED AND THE RESIDENTIAL QUALITY IN DECLINING AND DETERIORATING NEIGHBORHOODS SHOULD BE IMPROVED WITHIN THE CITY OF DENVER.

51. THE INVOLUNTARY CONCENTRATIONS OF LOW INCOME PERSONS, ELDERLY, HANDICAPPED AND ETHNIC MINORITIES SHOULD BE REDUCED WITHIN THE CITY OF DENVER.

52. THE ECONOMIC VITALITY OF THE CITY OF DENVER SHOULD BE IMPROVED BY PROVIDING MORE EMPLOYMENT OPPORTUNITIES.

53. REDEVELOPMENT OF DETERIORATING OR OBSOLETE AREAS WITHIN THE CITY OF DENVER SHOULD BE ENCOURAGED WITH A HIGH PRIORITY ON NEW HOUSING IN THESE AREAS.

54. EQUITABLE COMPENSATION SHOULD BE PROVIDED TO THE CITY OF DENVER FOR AREAWIDE USE OF REGIONAL FACILITIES PROVIDED BY DENVER.

C. Regional Development Areas (Urban Service Areas)

55. NEW DEVELOPMENT WITHIN URBAN SERVICE AREAS SHOULD OCCUR CONTIGUOUS TO EXISTING DEVELOPMENT AND THE IN-FILL OF THE EXISTING PATTERN WHERE DEVELOPMENT HAS "LEAP-FROGGED" IN THE PAST SHOULD BE ENCOURAGED.

56. MUNICIPAL GOVERNMENTS WITHIN URBAN SERVICE AREAS ARE ENCOURAGED TO ANNEX UNINCORPORATED AREAS WHICH ARE CURRENTLY DEVELOPED OR ARE SCHEDULED FOR DEVELOPMENT BASED ON THE FOLLOWING GUIDELINES:

    (1) ANNEXATION SHOULD REPRESENT A LOGICAL EXTENSION OF A MUNICIPALITY'S BOUNDARY.

    (2) ANNEXATION SHOULD BE CONSISTENT WITH MUNICIPALITIES' ABILITY AND CAPACITY TO SERVE THE ANNEXED AREA WITH URBAN SERVICES AND FACILITIES.

    (3) ANNEXATION SHOULD BE BASED ON A LOGICAL PROGRAM AND SCHEDULE DEVELOPED BY THE MUNICIPALITY.

57. ESTABLISHED RESIDENTIAL AND COMMERCIAL AREAS WITHIN URBAN SERVICE AREAS SHOULD BE MAINTAINED AND PRESERVED.

D. Plains

58. THE AGRICULTURAL CHARACTER OF THE PLAINS SHOULD BE PRESERVED.

59. NEW DEVELOPMENT IN THE PLAINS SHOULD BE DIRECTED TO RURAL TOWN CENTERS WHERE PUBLIC WATER AND SEWER SYSTEMS AND OTHER LOCAL SERVICES ARE PRESENT OR CAN BE PROVIDED.

60. RURAL PUBLIC SERVICE STANDARDS SHOULD BE MAINTAINED IN THE PLAINS WHILE NOT ALLOWING THE EXTENSION OF REGIONAL SYSTEMS OR THE PROVISION OF REGIONAL SERVICES.

E. Mountains

61. NEW DEVELOPMENT IN THE MOUNTAINS SHOULD BE DIRECTED TO MOUNTAIN DEVELOPMENT AREAS WHERE PUBLIC WATER AND SEWER IS PRESENT OR CAN BE PROVIDED.

62. THE LOCATION AND EXTENT OF DEVELOPMENT IN THE MOUNTAINS AREA SHOULD BE BASED ON ITS ENVIRONMENTAL CAPACITY.

63. RURAL PUBLIC SERVICE STANDARDS SHOULD BE MAINTAINED IN THE MOUNTAINS AREAS, WHILE NOT ALLOWING THE EXTENSION OF REGIONAL SYSTEMS OR THE PROVISION OF REGIONAL SERVICES.

64. THE SUBSIDIZATION OF MOUNTAINS AREA DEVELOPMENT BY THE REMAINING PORTIONS OF THE REGION SHOULD BE REDUCED.

Appendix C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OCT 3 1977

THE ADMINISTRATOR

SUBJECT: EPA Policy on Land Treatment of Municipal Wastewater

FROM: The Administrator

TO: Assistant Administrators and
Regional Administrators (Regions I-X)

President Carter's recent Environmental Message to the Congress emphasized the design and construction of cost-effective publicly owned wastewater treatment facilities that encourage water conservation as well as adequately treat wastewater. This serves to strengthen the encouragement under the Federal Water Pollution Control Act Amendments of 1972 (P.L. 92-500) to consider wastewater reclamation and recycling by land treatment processes.

At the time P.L. 92-500 was enacted, it was the intent of Congress to encourage to the extent possible the development of wastewater management policies that are consistent with the fundamental ecological principle that all materials should be returned to the cycles from which they were generated. Particular attention should be given to wastewater treatment processes which renovate and reuse wastewater as well as recycle the organic matter and nutrients in a beneficial manner. Therefore, the Agency will press vigorously for publicly owned treatment works to utilize land treatment processes to reclaim and recycle municipal wastewater.

RATIONALE

Land treatment systems involve the use of plants and the soil to remove previously unwanted contaminants from wastewaters. Land treatment is capable of achieving removal levels comparable to the best available advanced wastewater treatment technologies while achieving additional benefits. The recovery and beneficial reuse of wastewater and its nutrient resources through crop production, as well as wastewater treatment and reclamation, allow land treatment systems to accomplish far more than most conventional treatment and discharge alternatives.

The application of wastewater on land is a practice that has been used for many decades; however, recycling and reclaiming wastewater that may involve the planned recovery of nutrient resources as part of a designed wastewater treatment facility is a relatively new technique. One of the first such projects was the large scale Muskegon, Michigan, land treatment demonstration project funded under the Federal Water Pollution Control Act Amendments of 1966 (P.L. 84-660), which began operations in May 1974.

Reliable wastewater treatment processes that utilize land treatment concepts to recycle resources through agriculture, silviculture and aquaculture practices are available. The technology for planning, designing, constructing and operating land treatment facilities is adequate to meet both 1983 and 1985 requirements and goals of P.L. 92-500.

Land treatment is also presently in extensive use for treatment of many industrial wastewaters, particularly those with easily degraded organics such as food processing. Adoption of suitable in-plant pretreatment for the removal of excessive metals and toxic substances would expand the potential for land treatment of industrial wastewater and further enhance the potential for utilization of municipal wastewater and sludges for agricultural purposes.

APPROACH

Because land treatment processes contribute to the reclamation and recycling requirements of P.L. 92-500, they should be preferentially considered as an alternative wastewater management technology. Such consideration is particularly critical for smaller communities. While it is recognized that acceptance is not universal, the utilization of land treatment systems has the potential for saving billions of dollars. This will benefit not only the nationwide water pollution control program, but will also provide an additional mechanism for the recovery and recycling of wastewater as a resource.

EPA currently requires each applicant for construction grant funds to make a conscientious analysis of wastewater management alternatives with the burden upon the applicant to examine all available alternative technologies. Therefore, if a method that encourages water conservation, wastewater reclamation and reuse is not recommended, the applicant should be required to provide complete justification for the rejection of land treatment.

Imposition of stringent wastewater treatment requirements prior to land application has quite often nullified the cost-effectiveness of land treatment processes in the past. We must ensure that appropriate Federal, State and local requirements and regulations are imposed at the proper point in the treatment system and are not used in a manner that may arbitrarily block land treatment projects. Whenever States insist upon placing unnecessarily stringent preapplication treatment requirements upon land treatment, such as requiring EPA secondary effluent quality in all cases prior to application on the land, the unnecessary wastewater treatment facilities will not be funded by EPA. This should encourage the States to re-examine and revise their criteria, and so reduce the cost burden, especially to small communities, for construction and operation of unnecessary or too costly facilities. The reduction of potentially toxic metals and organics in industrial discharges to municipal systems often is critical to the success of land treatment. The development and enforcement at the local level of pretreatment standards that are consistent with national pretreatment standards should be required as an integral part of any consideration or final selection of land treatment alternatives. In addition, land treatment alternatives must be fully coordinated with on-going areawide planning under section 208 of the Act. Section 208 agencies should be involved in the review and development of land treatment options.

Research will be continued to further improve criteria for preapplication treatment and other aspects of land treatment processes. This will add to our knowledge and reduce uncertainties about health and environmental factors. I am confident, however, that land treatment of municipal wastewaters can be accomplished without adverse effects on human health if proper consideration is given to design and management of the system.

INTER-OFFICE COORDINATION

The implementation of more recent mandates from the Safe Drinking Water Act (P.L. 93-532), the Toxic Substances Control Act (P.L. 94-469), and the Resource Conservation and Recovery Act of 1976 (P.L. 94-580) must be closely coordinated with the earlier mandate to recycle wastes and fully evaluate land treatment in P.L. 92-500. Agencywide coordination is especially important to the proper management of section 201 of P.L. 92-500, because the construction and operation of thousands of POTW's involve such a broad spectrum of environmental issues. A concerted effort must be made to avoid unilateral actions, or even the appearance of unilateral actions, which satisfy a particular mandate of one Act while inadvertently conflicting with a major Agency policy based upon another Act. The intention of P.L. 92-500, as it concerns land treatment, is compatible with the pertinent aspects of more recent environmental legislation.

ACTION REQUIRED

Each of you must exert maximum effort to ensure that the actions of your staffs reflect clearly visible encouragement of wastewater reclamation and recycling of pollutants through land treatment processes in order to move toward the national goals of conserving water and eliminating the discharge of pollutants in navigable waters by 1985.

This policy will apply to all future municipal construction grant activities, as well as all current grant applications in the Step 1 category that have not been approved as of this date. Detailed information and guidance for implementation of this policy is under preparation and will be issued in the near future.

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